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THE INDUSTRIALIST.

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STATE AGRICULTURAL COLLEGE.

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentage and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

AGRICULTURAL COLLEGES AND COLLEGES OF AGRICULTURE.

FROM the beginning of efforts to establish a basis of education for farmers, suited to their varied wants, two prominent ideas have taken the lead. The schools themselves have to some extent divided from each other as one or the other stood first. In the one, education for the farmer as a man among men seems chief, and gives rise to the Agricultural College. In the other, professional training is chief, and makes the College of Agriculture one of a group of technical schools. Most of the National Land-grant Colleges have wavered between these two extremes, and settled at length into one or the other as circumstances or leaders have decided. We have, then, the two types in contrast.

The technical school of agriculture is naturally preceded by a general course of study, fitting for the higher research and extensive investigations required in a professor of agriculture. To be proficient in sciences applied to agriculture, one needs a long and thorough training in science and the literature of science, much of which is accessible only in German and French. The course of study is naturally limited in range to specialties in the wide range of science applied to tillage. One student becomes an agricultural chemist, another an economic entomologist, another a veterinary surgeon, and another uses his botanical tastes to advantage in the study of plant diseases, propagation of varieties, etc. Those who pursue such courses must aim at being experts in these special lines of work, such as the country needs for special experimental study of agricultural sciences.

The Agricultural College accepts the present condition of agriculture in its neighborhood as a foundation on which to build a better agriculture. It supposes that the sons and daughters of farmers who expect to follow their parents in ownership of the home farm are in need of such acquaintance with the wisdom of the world as may help both directly and indirectly in their life work. The traditional training in languages and mathematics has a bias largely professional. Ministers, lawyers, and doctors have had the culling of facts, illustrations, and problems for such training for centuries. Even the modern sciences have been studied rather historically than experimentally, and the applications are chiefly in the range of mechanical and artistic pursuits.

It has been found possible to so arrange the outline of a course of study that every step of progress is educational in the broad sense of awakening and developing youthful minds while it keeps up associations with the every-day life of the farm. Each study in language, mathematics, and science gains interest from its adjustment to the life of the people whose daily wants are met. Even logic deals with the puzzles of every-day reasoning, and rhetoric shows the art of persuading in common life.

But with such a course of study, among such students, in the hands of teachers thoroughly in sympathy with their work, there is room for a considerable training for farm life directly. Courses of lectures to students, with such general training in line with their life, mean more than to others. Agricultural and horticultural truths take the form of science by becoming explanations of the best methods, and the reasons for them. Practice upon farm and garden becomes as natural as practice in shop or laboratory or the field survey. The general drift of thought includes the every-day questions of practice as well as the theories of social life; and the tone of the college reaches out through all the students to the homes of the coun-

try from which they are not weaned by long separation from kindred thoughts and ways.

Such colleges have students in abundance, and furnish to the technical schools their meagre quota of investigators. Indeed, they naturally gather the machinery best fitted to tempt into higher research the few whose talents and inclinations lead that way. The great mass of students go back to the work of life strengthened by both knowledge and practical wisdom. Such training is good for one year or four years, as the student may find means to pursue it. This is a real Agricultural College in that it gives real education in lines that make the sons and daughters of farmers strong men and women without destroying their faith in the home life, its usefulness, honor, and comfort.—Pres. Fairchild.

WAYS, MEANS, AND MAXIMS IN MANUAL TRAINING.

AN examination of the current programme of the Association will show that "Slojd"—I shall use this term for "Educational Manual Labor" to give the Committee on Nomenclature a chance to test its euphony—is a chief subject for debate in the union meetings, as well as the main question for discussion in two of the departments. No other subject has of late received such general attention, and none is likely to rob it of this distinction for some time; but while the present discusses the value of slojd as compared with other and older means of education, and considers its introduction into the curricula of the different grades and kinds of schools, the future will regard this primary face as settled and will investigate and debate other aspects. Indeed, we of this Section have already arrived here. Slojd is a fact with us, and we are its pledged champions. The principles of this new education are to us but the maxims of a better status of society.

I am aware that the great range of adaptability of slojd prevents the formation of inflexible rules of teaching, but this is the case with most other subjects of instruction. It is necessary to vary the course according to the age of the pupil, the character of the school, whether preparatory or completing, and it must vary also according to the character of the teacher, the completeness of the shop, and the abundance of illustrative material. All I can do, then, in this paper will be to give you a few ideas which have crystallized into something like general truths, and state a few limitations which I have noticed during a connection of thirteen years with one of the manual training schools of the country. My chief purpose in bringing these observations before the Section is to invite a general discussion. If my statements should appear positive or dogmatic, remember that the limit of my paper precluded any other form.

First—Slojd must form a part of the work of every day, and must be continued throughout the whole course. It must be an obligatory branch of instruction,—not optional. Absences from slojd must be treated like those from other studies. The effort and advancement of the pupil must be carefully graded and recorded. In short, slojd must not be treated as a special, experimental, additional, plebian, or privileged branch of instruction.

Second—The time given to it must vary according to the age and strength of the pupil, or the nature of the labor demanded of him, and should be sufficient to produce the feeling of fatigue, but not of exhaustion. The limit may be put at from fifty minutes to three hours. The programme of daily work should be arranged so as to give the

morning hours to the purely mental studies, as mathematics and language, to be followed by scientific studies and laboratory work or drawing, while slojd should come last.

Third—The discipline during shop hours should be that of other classes. Permit the removal of coat, collar, and cuffs; insist upon the wearing of a convenient and clean shop apron, and prohibit the use of gloves.

Fourth—All work must be done with men's tools, not toy or boys' tools, and must be business-like, honest, and well understood. The pupil must be held responsible for the proper care and treatment of his assigned tools. All tools should belong to the school, and must be of good quality and alike for all members of the class. The shop may be cleaned and swept by a janitor, but the pupil must look to the proper condition of his work bench. The workshop should be provided with a clock, and the ante-room with a coat-rack, a number of washbowls, etc.

Fifth—The pupil should be required to make complete things. The so-called Russian system, in which the pupil learns to use tools on raw material in different states without knowing what form it is to have when completed, has been tried and found wanting. By complete things is not meant complete articles of use, but complete parts, joints, stages of work in the making of definite objects. While the work must proceed from the simple and coarse to the finished and complex, the teacher should also remember that it cannot be dissected and graded like the purely mental.

Sixth—The tools used should be simple hand tools, not machines. Attempts have been made to reduce the number of representative tools to seven, but there are evidently many more. Complex machinery is an excellent means of education in the higher classes of polytechnic schools.

Seventh—Slojd, not connected with a course of study in mathematics, science, and language, has little educational value.

Eighth—The relation of slojd and drawing is such an intimate one that it is impossible to disconnect the two. Both work toward the same end. Drawing is the language of form, and slojd the process of investigation of the mathematical and physical properties of things, i. e., of real forms. The one is connected with conception and the other with creation. In the purely mental atmosphere of the old school, drawing was a purely emotional, or at least purely mental, branch of education—a sister of music—but the progress of industrial art, during the present half of the nineteenth century, the force that has evolved slojd has also changed the character and position of drawing as an educational means. The study has become a study of exact mathematics, and has developed a series of conventional signs and methods of expression. Its tools have multiplied from the crayon and pencil to the multiplex contents of the draughtsman's drawer, including compasses, drawing pen, trammel, T-square, triangle, irregular curve, perspective linead, dontograph, and many others. It has changed its character to such an extent that the question is sometimes asked if it is not a sufficient substitute for slojd,—if the use of the pencil and all the other tools might not comprise all, or nearly all, the benefits of shop work. The answer is, Drawing does not make things, but pictures, and does not teach the physical properties of materials and the mechanical properties of tools. The two branches are not substitutes for each other, but supplements, and should be taught in parallel courses supporting each other. The drawing class should teach the methods of representation of form, and the work in the shop should be done after drawings, i. e., orthographic or isometric projections made by the pupil from black-board originals or dictations.

Ninth—The course of instruction must vary according to the age of the pupil, the means of the institution, and the special object, if any, of the endowment. Boys under ten or twelve years of age cannot use men's tools, and should be given work in clay modeling, shaping in hard plaster of paris, etc. Older pupils should begin their slojd with work in pine or tulip-wood, and should receive class instruction. Begin with sawing and nailing, follow with coarse planing, boring, mortising, and dove-tailing; then take up matching and joining, and follow with hatchet and drawing-knife work. Let the pupil grind or file his tools. During the second year the lathe should be a principal tool. Of all the tools of the workshop the lathe is the one most eagerly and profitably used by the pupil, and it permits the easy creation of the great-

est variety of forms. Hard wood may be introduced now, and as a test of the ability to shape material and handle tools acquired during the first two years some more or less complex piece of furniture may be built involving all the tool manipulations learned, together with many new ones. During the third year, work in metal should be taken up. Begin with filing, and follow with drilling, thread-cutting, and lathe work. During the fourth year, the pupil should study work on the anvil and the forge. In large classes, the anvil work is best introduced by using cold lead bars which behave under the hammer much as soft heated iron does. After learning stretching, reducing, welding, tempering, etc., foundry work should be taken up, and lastly the student should enter the engine-room and learn to govern the atlas of the industrial world. If the course covers over four years, the foundry will furnish a rich and profitable programme.

I have merely given here an outline of one kind of slojd. The agricultural school should interperse this during the season of crop growth with work in the garden, the greenhouse, the nursery, the barn, and the field. Work of this kind cannot be well graded, however, because it depends upon the seasons, the condition of crops, roads, and fields, and especially upon the weather. It has also a directly economic character which the teacher cannot change and which the pupil recognizes. It has been found best to pay for such work a small remuneration of seven to ten cents per hour, according to the effectiveness and thoroughness of the efforts. Other special schools might make other changes, but whatever is being done the boy must not be sacrificed to the work he is to do. The work must be educational or it will be worse than useless in a course of instruction.

Fruitful instruction is the result of many factors, but the teacher is the chief one. To teach slojd one must be a mechanic, a scientist, a teacher, and a philosopher; he must be of an active disposition, full of earnest enthusiasm, and wholly in sympathy with his work. Wherever slojd has fallen short of its usual results the indications have pointed toward the teacher as the main cause.—*From Address by Prof. Walters before Natl. Ed. Assn., Nashville, Tenn., July 21st, 1889.*

IRRIGATION FOR WESTERN KANSAS.

MANHATTAN, KAN., July 24th, 1889.

Hon. William M. Stewart, Chm. Special Committee U. S. Senate.

Dear Sir—In accordance with your request for information, the Committee appointed by the Board of Regents of the Kansas State Agricultural College have made careful inquiry, with personal inspection, as to the need of irrigation in the western portion of the State, and present herewith their conclusions with the hope that your Committee may carefully scrutinize the facts in the case, and gather such definite information as may lead to immediate results.

We have found a very considerable part of the western half of the State suffering annually from insufficient rain-fall, and estimate that an area of 25,000 square miles of arable land is but partially available for agricultural purposes without artificial supply of water by some system of irrigation. Upon all this region the annual rain-fall is not much above twenty inches, and is frequently so distributed as to prevent the maturing of summer crops, while encouraging extensive planting by fairly abundant rains in the spring. In soil and surface, the entire area is most admirably adapted to cultivation; and, when furnished with water during July and August, is very productive. The whole region is already occupied by a sturdy body of farmers, and dotted with towns with hundreds and even thousands of inhabitants, all striving in every way to develop the country, and to devise ways and means for a successful agriculture. They are well worthy the utmost attention that the Committee can give; and no portion of the country would better repay any outlay in the development of methods of irrigation, should even a partial success be reached.

In the portion of the State lying in the valley of the Arkansas River, very considerable efforts have already been expended, as your Committee is doubtless aware, in providing irrigating ditches upon the surface. These have met with such a degree of success as to encourage still further expenditure, provided a sufficient supply of water can be secured. Your attention is especially called to devices for tapping the under-current permeating the gravel subsoil, as worthy of immedi-

ate investigation. It is the universal testimony of the inhabitants that never-failing wells are found throughout the valley by driving pipes a few feet into the soil; and an inexhaustible well only nineteen feet deep supplies the Garden City water-works. These and many other facts lead to the inference that the water available for irrigating purposes may be largely increased by some system of tiling from this subterranean reservoir to the surface of the valley lower down the stream.

A somewhat limited supply of water has been found by boring artesian wells. These are, so far, confined to a somewhat narrow region, extending from about the center of the Colorado border, north of Coolidge, through the southwestern corner of the State. These are worthy of further tests, both as to the extent of territory where such wells are possible, and as to the best conditions for their construction. Some data for suggestions in this direction will, it is understood, be furnished by the Secretary of the State Board of Agriculture.

In the northwest corner of the State, no sufficient supply of water is available, though the general conditions of surface and soil are very attractive to enterprise. The possibility of utilizing the rain-fall of that region to better effect by storage in the various depressions and "draws" is worthy of consideration. In some parts of these western counties, very considerable streams supply, at some seasons of the year, large quantities of water, which might be safely stored in reservoirs, made by damming at various points, and distributed in time of need to the sloping prairies below. The Committee have no knowledge of any experiments there in boring for artesian water. The general supply of water is secured by wells from 140 to 200 feet deep, though some wells are much deeper.

Another important question, bearing upon the water supply of the whole western border of the State, is its relation to the neighboring State of Colorado, from which the various streams flow. Any extensive use of water for irrigation in the eastern part of Colorado must reduce the supply for irrigating ditches already made in Kansas at a cost of millions of dollars. This brings into consideration inter-state interests of no mean dimensions.

In conclusion, the Committee wish to emphasize the importance of immediate attention to a region so well adapted to agricultural purposes in every respect, already occupied by people anxious to avail themselves of any information that may be gained, and with very considerable investments of capital, likely to be irretrievably lost in any failure to gain relief from summer drought. Further, it is believed that if Government can point out the way by immediate investigations, abundance of private capital will be available for the development of such a promising industry as would be insured by comparatively slight addition to the water supply of this semi-arid region.

The members of the Senate Committee are themselves acquainted with the astonishing facts in connection with the settlement of this region, and will not fail to act with the utmost promptness allowed in so important a matter. We have felt it our duty to express emphatically the urgent appeal of the sturdy settlers in this region for immediate assistance. The whole region is looking to your Committee for help, and asks it at once.

This Committee refrains from a fuller statement of facts in this matter, feeling that Senator Plumb of this State will present in your Committee, of which he is a member, the urgent importance in the case; but should further facts from our experience or investigations be desired, the members will gladly advise with you at any convenient meeting place in the State.

Hoping that your researches may come to a prosperous conclusion, we remain yours respectfully,

GEO. T. FAIRCHILD,
MORGAN CARAWAY,
E. M. SHELTON,
Committee.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

CALENDAR.

1889-90.
 Fall Term—September 12th to December 20th.
 Winter Term—January 7th to March 28th.
 Spring Term—March 31st to June 11th.
 June 11th, Commencement.
 1890-91.
 Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at *par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Superintendent Thompson has had a two-weeks vacation at his old home in Newton.

The INDUSTRIALIST greets its readers this week in an entirely new dress. The sheet is a trifle larger also.

Grass never was greener, flowers never grew more thriftily, and trees never showed a richer foliage than this summer.

Bulletin No. 8, to be issued about October 1st, will give Prof. Kellerman's experiments with rust and smut in wheat and oats.

Prof. White has spent most of his vacation at Idaho Springs, Colorado, but takes a trip into Middle Park before returning.

Prof. Lantz is conducting the County Normal Institute at Concordia, his reputation as a successful Conductor being proverbial.

Prof. Hood is enjoying a visit from two younger brothers, who are spending a part of their vacation with him. Their home is in Indianapolis.

Bulletin No. 7 of the Experiment Station is ready for issue. It contains the report upon wheat culture from the standpoint of last year by giving results of this year's experience.

The highest yield of wheat upon the College farm this year was upon the west half of a field north of the barn, in which a measured portion gave fifty-three bushels to the acre.

Prof. Failyer spent a short vacation in the woods of Arkansas, where his father has been living for some years past. He pronounces the timber of that region the finest he has ever seen.

Prof. Olin lectures this week and next in Normal Institutes at Ingalls, Lakin, Garden City, Dodge City, and El Dorado, in all of which he appears as a minister of good will from the College to the country schools.

Mrs. Kedzie is spending the summer with her relatives at the Michigan State Agricultural College. She will present a paper prepared at the request of the Secretary of the Association at the A. A. A. S. meeting at Toronto.

The experimental corn, fifty or sixty varieties, planted side by side for a study of maturing qualities, affords interesting lessons of variation to one who passes by it merely. We shall await with interest the final report of this experiment.

The thanks of the officers of the College are due to the hundreds of State papers which have given complimentary notices of Commencement exercises and of the Annual Catalogue. Good words of this kind are highly appreciated.

Prof. Walters was a worthy representative of the College at the National Educational Association meeting in July. His paper before the Industrial Section was received with general commendation, and we present it, in part, to readers of the INDUSTRIALIST.

The President's house is undergoing repairs in the shape of paper-hanging, with the addition of a comfortable storm-house on the porch at the front entrance. A slight change in the arrangement of a partition has added greatly to the interior beauty and convenience.

The excessive growth of the ensilage corn this year endangers the machinery employed in cutting it. Last week the cutter was suddenly brought to a standstill with nine big ears under the knives at once. Careful feeding of the stalks is needed to prevent serious breakage.

The measured acre of ground which has been sown to wheat annually for the past nine years, without any manure of any kind upon it, has produced seven crops in the nine years,—two being total failures from winter-killing,—the least of which is thirty-seven bushels of Zimmerman wheat,

and the largest forty-seven bushels. The total product divided by nine, gives an average annual product, including the years of failure, of 24.9 bushels. The soil is the ordinary bench land of the Kaw Valley, inclined toward the east, but gaining no drip of fertilizing material from any higher level. It is such good wheat land as Kansas abounds in.

Prof. Shelton and family are spending two or three weeks among relatives in Michigan. Prof. Shelton himself attends Commencement at the State Agricultural College this week, and will meet with the Association for Advancement of Agricultural Science at Toronto the last of this month.

Prof. Popenoe has taken his family for a few weeks of recreation to one of the little lakes near Grand Haven, Michigan, where they spent a part of a previous summer with great satisfaction. Prof. Popenoe hopes to go with Prof. Shelton to the meeting of the American Association for the Advancement of Agricultural Science at Toronto.

The stone-work on the new tool-room and stable for the Horticultural Department is completed, and the building will soon be finished. It is a neat structure, 24 by 34 feet, with a basement, first floor, and loft, covered with tin shingles, similar to those upon the Horticultural Laboratory. Standing directly north of the President's house in the edge of the apple orchard, it is convenient to all parts of the grounds.

The College authorities interested have reluctantly decided not to attempt an exhibition at the State Fair this fall. The fact that the Fair occurs just after the opening of the College year, when all the officers are needed at their posts, has some weight in this decision; but the condition of experimental crops is such that to trespass upon the rows or plats of corn, potatoes, and sorghum for the exhibit would destroy the very data for comparisons upon which all conclusions must be founded. Further, the best of the herd of cows are not in condition to endure the journey to the Fair with safety. All regret the necessity for this decision, since the College was never in shape to make so good a display as now. Its herd is acknowledged to have among the best specimens in the State of Shorthorns, Herefords, Polled-Angus, and Jersey cattle, and its array of varieties of corn, sorghum, potatoes, tomatoes, beans, and peas is unsurpassed. Our friends will have to come and see for themselves the work of the College in these lines of agriculture and horticulture.

BOARD MEETING.

All the Regents were present at the meeting of the Board on July 30th and 31st. Most of the business transacted was routine matter in connection with financial affairs of the College. Vouchers Nos. 692 to 860 in College accounts were examined and approved, and vouchers Nos. 201 to 322 in Experiment Station accounts were also approved. The papers of the Loan Commissioner were found correct, and the transfer of books and papers from T. P. Moore, Ex-Commissioner, to Jno. E. Hessin, Commissioner elect, was accepted by the Board. The Committee on Buildings and Grounds, authorized to construct water-works, build horticultural barn, and carry on general repairs of College buildings, reported that the appropriation for water-works has been expended as follows:—

For engineering to J. W. Nier	\$ 30.00
For pipes, hydrants, hose, and fittings to Ripley & Brunson ..	1738.93
Executive Department	103.86
Richards & Conover	1.30
Crane Bros. Manufacturing Company	150.30
For laying and connecting pipes to D. B. Alman	402.24
To Mechanical Department	170.65
To Horticultural Department	15.00
For freight to Jno. E. Hessin	357.82
To I. D. Graham	2.70
For hauling to T. B. McCamon	27.20
Total	\$3000.00

This provides for water at all buildings except the Farm barn, with four fire hydrants, four yard hydrants, and twelve washers outside, and furnishes 400 feet of fire hose and 400 feet of garden hose with nozzles. The service seems satisfactory, so far as tried, the pressure being sufficient to throw a stream from a three-fourths inch nozzle at the end of 100 feet of 2½ inch hose upon the roof of the main building.

The same Committee also reported having made a contract with L. Rasmussen for laying a stone floor with tooth-axed surface in the basement of the horticultural building at 14 cents per square foot. Also, that contract for the stone work, including excavation upon the barn for the Horticultural Department, has been made with C. A.

Spongburg at \$499.00 for the job; the total amount of wall estimated at 304 perches. The carpenter work for the barn has been undertaken by the Mechanical Department, and the whole construction is under the general superintendency of Prof. Walters.

The officers were authorized to issue to Joseph Pierce a deed in fee simple for the property known as the old Boarding Hall, he having made payment in full of contract.

Upon request of Augustine Beacham of the Class of 1880, President Fairchild was authorized to issue a certified copy of his diploma, the original having been destroyed by fire.

Several delinquents on land and real-estate contracts were notified that renewal of contract by payment would not be possible after September 1st next.

After full discussion of a report from the Committee on Employees, it was decided that Mr. F. H. White be appointed Professor of History and Constitutional Law at a salary of \$1,400; that Professor Lantz's resignation be received, but that further consideration be deferred until the meeting in April, 1890; that the chair of Physiology and Veterinary Science be left vacant for the ensuing College year, the instruction in that department to be shared between Professors Failyer, Popenoe, and Kellerman; that President Fairchild be authorized to secure, if possible, the services of a competent person to give instruction in Physics and Telegraphy, with a view to combining the two into a practical Department of Electrical Engineering, and to provide for temporary instruction meanwhile; that President Fairchild be authorized to employ assistance in elementary teaching as in past years; that after September 1st the services of a separate herdsman be dispensed with, and the herd be placed in direct charge of the Farm Foreman; that Mrs. Winchip be allowed such assistance as may be needed by employment of a post-graduate student on the usual terms; that Jennie C. Tunnell be employed as Assistant in the Library at thirty dollars a month; that the salary of the Professor of Agriculture be reduced to \$2000 and house. and that of the Professors in Chemistry, Horticulture, and Botany be made \$1800, and that the Assistants and Foremen of the Farm and Horticultural Departments be paid \$60 per month.

The Chairman of the Committee on Horticulture reported favorably upon the purchase of a lawn-mower and a few minor tools, which report was adopted.

The estimate of current expenses for labor and supplies in the several departments of the Experiment Station, presented by the Council, was approved by the Board. The members of the Faculty directly interested were authorized to use their own discretion with reference to an exhibit at the State Fair this fall. A small appropriation was made for further advertisements. The Board recommended to the Governor the appointment of Hon. Joshua Wheeler of Nortonville as a delegate to the National Farmers' Congress to meet at Mobile, Alabama, next November.

President Fairchild and Regents Caraway and Forsythe were appointed a special committee for revision of the Course of Study, to report at the next meeting of the Board.

Adjourned to meet second Tuesday of October, 1889.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses. Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$14 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

GRADUATES AND FORMER STUDENTS.

Anna Snyder, '88, hopes to take post-graduate studies here this fall.

E. K. Moody, student in 1888, expects to return to College this fall.

G. W. Waters, '86, is mentioned among Riley County teachers this winter.

H. A. Platt, '86, reports good wheat, but little corn, upon his farm in Wichita County.

W. A. Corey, '84, is highly commended as Principal of Schools at Norwich, Kansas.

A. Beacham, '80, lost all his possessions, even to his diploma, in the great fire at Seattle, W. T.

Jennie C. Tunnell, '89, will take the place of Assistant in the Library for the next college year.

Lillie B. Bridgman, '86, and Minnie Reed, '86, will teach in the Argentine schools together this year.

Theresa Wikander, Third-year in 1885-6, was married June 27th to Mr. H. S. Riddle of Randolph.

O. L. Utter, '88, has spent the summer in work horticultural and entomological under direction of Prof. Popenoe.

S. H. Carnahan, student in 1883-4, was married June 16th at Walla Walla, Washington, to Miss Nettie Fera.

P. H. Fairchild, '86, will enter soon upon his last year in medical studies at Bellevue Hospital College, New York.

J. U. Higinbotham, '86, has been admitted to the bar in this State, and will practice his profession in Manhattan.

W. C. Parker, Second-year in 1886-7, writes of success as station agent on the C. & A. Railway at Ashland, Illinois.

Geo. E. Rose, a Fourth-year in 1880, was married July 3rd at Rosedale, Kansas, to Mary R. Holsinger of that place.

M. A. Carleton, '87, has spent the summer in a collecting tour among the Rockies for the museum of Garfield University.

C. H. Stiles, Third-year in 1880, and Nellie Cottrell Stiles, '87, are to be congratulated upon the birth of a son, July 27th.

V. H. Calvin, Third-year in 1886-7, was licensed as a local preacher at the last quarterly conference of the M. E. Church.

Mattie Cobb, '88, is taking special work in chemistry this month in preparation for her teaching this winter at Holden, Mo.

Many friends will mourn with I. D. Gardiner, '84, and Ida Quinby Gardiner, '86, over the loss of their little boy early this month.

A. J. Rudy, Third-year in 1888-9, spends a year in Fresno City, California, after which he expects to return and finish his course here.

D. G. Fairchild, '88, is Assistant in Botany, with special study of plant diseases, at the Department of Agriculture, Washington, D. C.

Phoebe E. Haines, '83, is writing for the Manhattan *Republic* a series of letters describing her visit to the wonderful Yellowstone Park.

Lora L. Waters, '88, is spending a few days with friends at the College before commencing another year in the Junction City Schools.

E. M. Fairchild, who spent the spring term in special studies at the College, returns to Oberlin, Ohio, for his last year in the classical course there.

F. J. Rogers, '85, Instructor at the College for the past two years, has gone to take a special course in mathematics and physics at Cornell University.

E. H. Perry, '86, and Ida A. Quinby Perry, '86, have left Eskridge to make their home in Topeka, where Mr. Perry is engaged in real estate business.

E. A. Allen, '87, was instructor in the Normal Institute at Atwood, Rawlins County, after completing his work in the Riley County Institute successfully.

Sam Kimble, '73, lawyer by profession, has been playing poet over the signature "Maxime," and has published his effusions, together with sun-

dry comments from rival versifiers, in a little pamphlet to be sold for the benefit of the Women's Relief Corps, G. A. R.

F. M. Jeffrey, '81, is commended in the Norton *Champion* for efficient aid in the prosecution of a murderer at the last session of the Court in Norton County.

A. H. Greeley, with the Third-year Class of last year, will recruit his health at his home in Fresno City, California, for a year, and return to complete his studies.

E. S. Andress, '84, met the President and Prof. Shelton at Garden City last month, reporting plenty of hard work but good prospects upon the ranch near Lakin.

Hattie L. Gale, '89, after a visit with her sister in Michigan, makes her home at Lake Worth, Florida, where her father has been established for several years past.

E. Ada Little, '86, will hereafter devote herself to music, having spent the past summer in Chicago where she has continued her studies in instrumental and vocal music.

Manhattan schools favor the following graduates of this College for the coming year: Ella S. Child, '77; Emma E. Glossop, '83; Phoebe E. Haines, '83; W. E. Whaley, '86; E. O. Sisson, '86.

Among the teachers of Riley County are noticed the following former students not graduates: Mima Carey, Ivy Harner, Laura Livings, Emma Spohr, Hannah Evans, Lizzie McIlwain, Jennie Fry, Mrs. Nellie Bland Thackrey, R. C. Abell, E. J. Abell, C. C. Chaffee.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Prof. D. E. Beacom has been retained as Principal of the Downs schools.

Topeka is taking preliminary steps for the organization of a medical college.

Coffey County has defeated a proposition to establish a high school at Burlington.

The Topeka *Capital* of August 18th contains historic sketches and short descriptions of about twenty Kansas educational institutions.

The school population of Kansas is 531,910. The August semi-annual apportionment of the interest from the State school fund is forty-eight cents per pupil.

The contract for the new chapel building of Washburn College at Topeka has just been let. The edifice will be the finest on the grounds, and when finished will cost over \$30,000.

Abilene has had a good deal of excitement over the election of a Superintendent of her city schools. After several hard contests, Prof. Graham was chosen; yet he concluded that under the circumstances the office would give him but little peace, and handed in his resignation. Then an eastern Professor was elected, and in a day or two a telegram came from him saying he could not leave home; so Prof. Moulten, another eastern man, was chosen.

The Kansas delegation to the National Educational Association at Nashville was not as strong in numbers as had been expected, but forty-six teachers reporting at Kansas headquarters. Ottawa County had sent six delegates, Douglass County four, and Leavenworth, Sumner, Riley, and Linn Counties, two each. The State Normal School was represented by Prof. Wilkinson, the Agricultural College by Prof. Walters, and the State University by Prof. J. H. Canfield, who, after having held the office of General Secretary of the N. E. A. for three years, was unanimously elected its President. Most of the Kansans joined in the excursion to the historic Lookout Mountain, visited the idyllic home of Pres. Andrew Jackson, some fifteen miles below Nashville, were present at the reception of Mrs. Pres. Polk at her mansion near the State capitol, and, in going home, stopped over at Glasgow Junction, Ky., to give a day to a tour of exploration through Mammoth Cave, one of the "natural" wonders of our continent. The weather was very favorable during the whole trip, and all were very much pleased with what they saw of Nashville. No city in the North has better educational facilities, and none possesses more hospitable citizens. The next meeting will probably be held at Minneapolis or St. Paul.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found in the Annual Catalogue:—

FIRST YEAR.

Fall Term: Arithmetic.
English Analysis.
Geometrical Drawing.
Industrial.
Winter Term: Book-keeping.
English Structure.
United States History.
Free-hand Drawing three times a week.
Industrial.
Spring Term: Algebra.
English Composition.
Botany.
Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed.
Elementary Chemistry.
Horticulture.
Industrial.
Winter Term: Geometry.
Agriculture or Household Economy.
Organic Chemistry and Mineralogy.
Twelve Lectures in Military Science.
Industrial (Cooking).
Spring Term: Geometry completed, Projection Drawing.
Entomology.
Analytical Chemistry.
Twenty Lectures in Military Science.
Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying.
Anatomy and Physiology.
General History.
Industrial (Farm and Garden).
Winter Term: Mechanics.
Agricultural Chemistry.
Rhetoric.
Industrial.
Spring Term: Civil Engineering or Hygiene.
Physics.
English Literature.
Perspective Drawing two hours a week.
Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature.
Physics and Meteorology.
Psychology.
Industrial.
Winter Term: Logic, Deductive and Inductive.
Zoology and Veterinary Science.
Structural Botany.
Industrial.
Spring Term: Geology.
United States Constitution.
Political Economy.
Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker, J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.
MEN'S W. L. DOUGLAS CALF SHOE, \$3.00.
We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. LESLIE H. SMITH'S SHOE STORE.

R. E. LOFINCK has new and second-hand College Books and School Supplies of all kinds. We also have a full line of Stationery, Gold Pens, Musical Instruments, Sheet Music, Music Instructors, and Collections. We have also a magnificent line of Jewelry in both plated and solid. Come and see an old student. Next door to Stingley & Huntress.

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

"LIBERAL AND PRACTICAL EDUCATION."

THE exact meaning of these words in the Land-grant Act of 1862 has been the point of dispute in nearly every State since the first effort to carry the act into effect, and no one can reasonably expect a perfect agreement upon terms of so broad an application. Still, a few general principles in education may help us to find a common ground upon which agreement with a difference is not impossible. It is well to know, certainly, the actual difference.

All education as such is designed chiefly to develop abilities. The means of development is such information as will stimulate best the powers of mind and soul, and give the surest foundation for clear and distinct thinking, and result in adequate knowledge. We resort to mere training of memory in a routine of facts only when the facts are an important part of the machinery of thinking. They must be at hand in calculations, like the multiplication table, or they must serve as means of classification, like the scientific names of groups in natural history, or they must stand as measures for comparison in future observations, like the foot rule or the pound weight. Beyond this machinery of thought we use information in education to establish habits of inquiry, habits of attention, and habits of mastery. The discipline of education is gained little by little in the multitude of questions asked, pondered, and answered by the student's own exertion. Little, if any, education results from a multiplication of mere facts, however useful they may be in other circumstances, or at some future time, unless they fit into the frame-work of thought which the student himself forms. Hence the danger from extensive courses of lectures, or even of reading, to immature, undisciplined minds. Evidently our liberal and practical education must be real education in that it trains minds into habits of correct thinking.

That education is liberal which broadens one's view of the world about which he thinks. My relation to the world of human beings is confined by any lack of knowledge of others' interests, wants, abilities, enjoyments, and sorrows. Every liberal education opens wider the range of observation and of reasoning, because it deals with human interests. The traditional classical course of study has had its grand influence upon thought because it aroused and answered such a host of questions about human nature under the ancient civilizations of Greece and Rome. The study of languages does little for liberal education unless it draws out a student's mind toward the men and women whose thoughts and lives made those languages, and whose progress in thoughtful life we of later ages inherit. Such education was once called "training in the humanities," because it made one think over again the story of the human race.

Of late the interests of the human race are found in the development of science. The broader, truer, history of the world, including mankind, is read in the record of progress left upon the soil, the plants, the animals, the human race, independent of conquering heroes. Not to pass by the traditions and partial records of memory transcribed in books, the world interprets these by a host of researches in the inevitable tracks left by each generation that has walked the earth. This research has developed both wants and abilities among men, so that the whole fabric of society today rests upon the knowledge thus brought to light and the arts resulting from such exact science. No education could now be called liberal if it neglected this view of human interests, while the ancient civilization as recorded in books is to a

large extent preserved in the common heritage of literature.

"Practical education" is such because of its evident utility in some direction, and coupled as it is in the act of 1862 with a special reference to "the industrial classes" and the "several pursuits and professions of life," it means to bear directly upon those problems of life which are to be worked out as well as thought out. Other things equal, that is most practical which is most liberal; but, in general, other things are not equal. The traditions of college life and the standard illustrations of college instruction have long been fixed by the needs of a few of the least practical professions. The machinery of college training has for the most part secluded students from the practical life of the multitudes. Boys of fourteen are sent to the boarding-school from which they are promoted to a college with a wholly artificial life, separated from the great industries of the world by walls, books, and instructors. Now the chief industries of the people, in farm, shop, and home, need practical illustration in the daily growth of students in thought and energy. Practical education without the practice in those habits of thought and work which must form the chief ability of after life is impracticable. The industries which make the interests of our civilization are interlocked in a general civilization that ought to pervade the schools for the people.

But in aiming at practical results there is danger of trying to make tradesmen instead of men, in which case we lose the liberal idea entirely and trespass greatly upon the nature of education, reducing it to a routine of training. If possible, let us agree that every course of educational institutions shall keep as near to the broad interests of humanity as possible, and vary in adjustment to circumstances about us that decide what is, and what is not, practical in the sense of making men and women more useful to themselves, their neighbors, and their posterity. In this spirit the truly practical and the truly liberal education are one.—
Pres. Fairchild.

IRRIGATION IN WESTERN KANSAS.

THE following letters from Senator Plumb, in reply to a letter enclosing a copy of the report published last week, are explicit and emphatic. The conclusion is essentially that which the Committee sent by the Board of Regents formed, and tried to impress upon the farmers of the western counties, that adjustment of the agriculture to the actual conditions of nature affords the only immediate, if not the final, relief from drought in midsummer. The Station has already undertaken experiments in the growth of the grain and fodder plants, including a variety of sorghums, best suited to resist dry weather, and will add still further efforts. The farmers themselves must put their energetic ingenuity at the same work, and meanwhile must make the best possible use of the means at hand, even in the buffalo grass they wish to supplant with a more thrifty vegetation. They may be assured that help, if available, will come all the sooner for their efforts to escape the need:—

HELENA, MONTANA, August 6th, 1889.

Geo. T. Fairchild, Esq., Manhattan, Kansas.

Dear Sir—I am in receipt of your favor of the 25th ult, covering copy of letter to Senator Stewart, Chairman of Committee on Irrigation.

That there is great need of increased water supply in the western third of Kansas, there can be no doubt; that is to say, if agriculture, as practiced in the eastern part of the State, is to be carried on. The question as to how this water is to be secured, if at all, is one of very considerable moment.

The State of Colorado has by its constitution appropriated all the water which flows in all the

streams in that State. Good lawyers assure me that this appropriation is legal, and if it be so, then of course no water can ever be derived for Western Kansas from the streams that flow through Colorado, until the Colorado people have been fully supplied.

It is possible, and perhaps even probable, that a moderate supply may be obtained by means of the subterranean flow in the channels of the Arkansas and Smoky Hill Rivers. Even if the water supply can be had, the question remains as to whether the Government should engage in furnishing it, or whether it should be left to private capital and enterprise. There is much to be said on both sides; but at all events it is due to candor that I say that no immediate relief is likely to be had; and it will take some time, and I fear some years, before any practical result to Western Kansas can come from the investigations to be carried on by the Committee.

I had no desire to serve on this Committee, and only accepted it with great reluctance because of the interest I knew the subject had for the people of Western Kansas, whom I am constrained by duty as well as by sentiment to serve in all proper ways.

I shall hope that before the Committee concludes its investigations, some way may be opened whereby the necessary water supply for the section under consideration may be procured. Truly yours,
P. B. PLUMB.

EMPORIA, KANSAS, August 24th, 1889.

President Fairchild, Manhattan, Kansas.

Dear Sir—Sometime since I received from you copy of a letter addressed to Mr. Stewart, Chairman of the Irrigation Committee. No argument is needed to demonstrate that the farmers in Western Kansas need more water for agricultural purposes than they are liable to get within any reasonable time through the medium of rain-fall. How they are to get it is the all-important question. By the Constitution of Colorado, all the waters which flow in the natural streams of that State are dedicated to the public use, and disposed of as the Legislature may direct; and it seems certain that the people of that State will take all the water from the streams which flow into Kansas during the growing season. It is probable the general Government has no right to interfere, and even if it had, probably could not be induced to take water from one class of farmers in order to give it to another. Besides, any contention of this character would take years to settle, and your communication states that the farmers want relief now.

Artesian wells have been suggested, but judging by the experience of other localities they could not be relied upon to furnish sufficient water to irrigate a thousandth part of the surface over which irrigation is needed. Some years ago the Government sank two wells at a point about half way between the west line of Kansas and Denver to a depth of two thousand feet without finding any artesian water. Shortly after that, artesian water was found at a depth of three hundred feet in Denver. The water from the first well was thrown above the surface to a distance of thirty or forty feet. Since that time other wells have been sunk with the result that no water now flows above the surface in any of them (the first one included); and the artesian water used in Denver is obtained by pumping. Sometime since an artesian well was sunk at Coolidge, Kansas, the water from which flowed above the surface. Since that time seven or eight others have been sunk in the same vicinity with the result of diminishing the flow in the first well, and that of the subsequent wells is less than that of the first one when it was sunk. A similar result is said to have been reached in California. From these facts I am bound to conclude that unless for something which has entirely escaped my observation, the chance for artificial water supply in Northwestern Kansas is not encouraging. Your Committee may have in view some plan which was not disclosed in your communication; and, if so, I should be glad to hear from you concerning it at your earliest convenience.

Meanwhile, permit me to suggest that the Agricultural College, and more especially the new Agricultural Experiment Station established in connection therewith by the liberality of Congress, should make a special endeavor to instruct the people of Western Kansas how to meet the conditions with which they are confronted. There are undoubtedly food plants which can be raised in that section without additional moisture, with success. A soil which will raise a heavy growth of grass such as covers the prairies of Western Kansas can be made to raise twice its equivalent in the shape of a food supply. This is a very fruitful field,

and I hope that your institution will give it proper attention. Truly yours,
P. B. PLUMB.

KINDRED INSTITUTIONS.

The Colorado Agricultural College Register for 1888-9 shows a total of 107 students.

Bulletin No. 20 of Wisconsin University Station deals with Noxious Weeds of Wisconsin.

Bulletin No. 18 of the Kentucky Station gives a report of experiments in "Pig-Feeding."

"Commercial Fertilizers" occupy the 20 pages of Bulletin No. 20 from Kentucky State College.

The Catalogue of Oregon State Agricultural College for 1888-9 gives an attendance of 99 students.

The July Bulletin of the Massachusetts State Station is a report of analyses of commercial fertilizers.

The Storrs School Station, Connecticut, issues Bulletin No. 4 upon "Bacteria in Milk and its Products."

The Ohio Station issues as Bulletin No. 2, Vol. 11, a treatise of nearly seventy pages upon "Colic in Horses."

Bulletin No. V. from the Delaware Station is a report upon "inspection of seed and of stock feed in Delaware."

Connecticut Station, Bulletin No. 98, deals with "Home-mixed Fertilizers," and No. 99 gives fertilizer analyses.

The Annual Report of Maine State College Experiment Station is a neat pamphlet of 223 pages, with a full index.

New Jersey Station gives Bulletin No. 56 upon "Complete Fertilizers," and a special bulletin upon "The Horn Fly."

The Tennessee Station is represented by a Bulletin, Vol. 11, No. 3, upon "Cotton Hulls and Meal as Food for Live Stock."

The New York Station, at Geneva, presents in Bulletin No. 16 "A Study of the Corn Plant," and "Lucerne, or Alfalfa."

Bulletin No. 6, New Series, of the Alabama Station is an illustrated pamphlet of 40 pages of printed matter and 39 of plates on "Grasses and their Cultivation."

Dakota Agricultural College Catalogue for 1888-9 gives a total enrollment of 244 students in all the courses, 129 of whom are in the regular four-years' course.

The Texas Station Bulletin No. 6 gives 40 pages to a "Feeding Experiment" with 48 steers in groups of six to decide "what feed stuffs obtainable in the State will give the best results."

Vermont Experiment Station issues in Bulletin No. 15 an account of fertilizers applied to corn, and analyses of first-class hay; and in Bulletin No. 16, a treatise on "Testing Milk in Dairies."

From Michigan Agricultural College we have Bulletins No. 49, upon "Chemical Composition of Cornstalks, Hay, and Screenings," No. 50 upon "The Grain Plant Louse," and No. 51 upon "Enemies of the Wheat Aphid."

The Report of the University of Illinois for the two years ending Sep. 30th, 1888, makes a neat volume of 260 pages, fully indexed. It contains besides the routine of proceedings in Board of Trustees and in Departments, an account of investigations and experiments previous to the organization of the Station, and a list of experiments undertaken in the Station.

PRACTICAL HUMANITY.

Human kindness may take practical forms of expression in divers ways, in that which we do, as well as in that which we cease from doing because it is cruel or because not humane. The pleasant, humanizing forms of kindly doing, calculated to add to and promote the happiness of the dumb creatures dependent upon us, may find expression in multiplied watering troughs on farms, or in beautiful fountains in our cities and villages, or in planted shade trees and groves for shade, upon our great farms or ranges.

Suffering upon the part of the dumb creatures resolves itself into three principal conditions—from thirst, from heat, and from cold. Provision against suffering from thirst should be abundant. It is a promoter of civilization, at once refining and ennobling. There is in the giving of water to the animals of her lover on the part of the courted damsel of Bible days an example of kindness, humanity, and cheerful service exceedingly pleasant to contemplate. All down through the history of our race the establishment of drinking fountains for animals of every name has been reckoned one of the highest, most ennobling, and civilizing works. For protection from heat or cold, the planted shade or grove is an evidence of heart kindness. Trees are God's protectors of the earth and the creatures of His earth. He set us the kindly example; let us follow in multiplied trees for shade and in multiplied fountains to allay the thirst.—*Humane Educator*.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$14 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

KANSAS THRIFT.

A bank is wanted at Paxico.

Delinquent tax lists will be much smaller next year.

An unprecedented crop of timothy was raised this season in the eastern part of the State.

H. C. Evans of Arkalon has an apricot tree that has grown thirty inches since set out in the spring.

Corn in Harper County which was listed on wheat stubble July 8th was too large to cultivate six weeks from planting.

James Homer of Louisville will soon harvest his sunflowers. He will use a combined header and thresher, his own invention.

Geo. Harran, living near Gaylord, has raised two crops of corn on the same ground this year. The first planting was early; the second planting was later and between the rows of the first. The first crop is cut and in shock, and the second is just nicely in tassel. Either planting will make a good average crop.

Franklin County is preparing to send a carload of agricultural products to the grangers' picnic at Williams's Grove, Cumberland County, Pennsylvania. The picnic continues a week, and is attended by farmers from all parts of Pennsylvania, New York, Virginia, Ohio, and other Eastern States, the attendance being very large, exceeding 50,000 one day last year.

What to do with the big corn crop is a perplexing problem to the farmer. Heretofore, big crops have been piled on the ground or left standing in the fields to damage and waste; but the lessons of recent years ought to teach us that the time to take good care of corn is when it is cheap and plentiful. It has also been the practice in former years to get the feed lot full of cattle and depend upon the growing crop to fatten them. If the crop failed, the stock was sacrificed and all was lost. Many have determined to begin the other way round this time and see if it will not be surer and safer. They will store the corn and then accumulate the stock it will feed.

THE METRIC SYSTEM.

At a recent meeting of the French Academy of Sciences, M. D. Malarce, speaking of the metric system of weights and measures, gave some interesting figures. In 1887, the aggregate population of the countries in which the metric system was compulsory was over 302,000,000, being an increase of 53,000,000 in ten years. In 1887, in countries with a population of close on 97,000,000, the use of the system was optional, and the countries where the metric system is legally admitted in principle and partially applied (as in Russia, Turkey, and British India) had in 1887 a population of 395,000,000, being an increase of 54,000,000 in ten years. The increase is due to the growth of population in the countries which had already adopted the system, and to its adoption by new countries. The system of China, Japan, and Mexico is decimal, but not metric. The metric system is thus legally recognized by 794,000,000 of people, and the three last-named countries have a population of about 474,000,000, so that only about 42,000,000 of the civilized world have systems which are neither metric nor decimal.—*London Standard*.

POETRY AND PLOUGHING.

Between rural occupations and the highest refinement there is no incompatibility. Burns followed his plough "in glory and joy upon the mountain side."—alas! for the day he forsook it. The lark that soared above him; the field mouse whose nest the "cruel coulter" destroyed; the wounded hare limping by to die in the "sheltering rushes"; all natural objects by which he was surrounded were to him sources of inspiration. The daisies that spangled the turf and were buried by his plough, bloomed again in verse which the centuries cannot fade.

The close relation between the poetical and the practical is sometimes scarcely recognized by those whose privilege it is to live in the presence of objects and influences capable of elevating and inspiring a responsive nature. Perhaps few men are more to be pitied than those whose thoughts sink to the level of material things, insensible to their hidden meanings. These, the poet interprets. Poetry is thought clothed in beautiful forms of expression. The same thought may gladden the farmer at his everyday work, although never expressed by him in words.—*Hartford Times*.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 25th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at *par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Lantz returned Friday from Concordia where he has been conducting a Normal Institute.

Secretary Graham has held his office open daily during vacation, with the exception of a two-days' trip to Topeka.

Prof. Hood is enjoying a new lathe for iron-work, just now being busy in perfecting a water motor to run it by.

President Fairchild is advertised as one of the speakers at a two-days' Farmers' Reunion this week at Wilson, Ellsworth County.

Mrs. Warden of Topeka paid a visit to the College on Wednesday to arrange for the attendance of her daughter who accompanied her.

Secretary Mohler of the State Board of Agriculture prints in his Crop and Weather Bulletin for July Prof. Shelton's report of experiments in wheat-raising.

Mrs. Kedzie will return from Toronto, where she reads a paper before the American Association for Advancement of Science this week, on September 4th.

The city authorities have earned the thanks of the College and its students by clearing the weeds away from the walks leading to the entrance. The work is well done.

Prof. Shelton and family are spending a delightful week in Ionia County, Mich. They will be home the last of next week, when the Professor can tell his own fish stories.

The crop of grapes this year is unusually good. A ton has already gone to market, and more are awaiting room in Colorado cities. The price is not likely to be as good as the grapes.

Assistant Breese takes his vacation this summer in brief installments at the various base ball games between the Manhattan nine and their neighbors. Report says he manages his club well.

Janitor McCreary has kept the buildings in trim during vacation, and now has most of the rooms in order for the opening of the College year. E. R. Burtis is his efficient aid in the cleaning.

Mrs. Winchip has spent a busy vacation at home, with a houseful of new dresses in all stages of advancement for her many friends who must have her taste and skill in the make-up of their wardrobe.

Prof. White returned on Wednesday last from his sojourn in the mountains, strong and hearty for another year's work. He was one of the champion climbers, having mounted both Pike's Peak and Gray's Peak.

Mr. W. H. Bower of the city called on Monday to show through our College his brother-in-law, Mr. Hornby, a teacher for many years past in Iowa. Mr. Hornby visited the College twenty-three years ago on the hill.

The College Y. M. C. A. and Y. W. C. A. are at work on a College directory, to be ready for distribution before school opens. It will contain directories of Association officers and committees, College Societies, College exercises, First-year classes, Manhattan churches, boarding places, and much other information useful to students new and old.

It is an honor to this College, as well as to Prof. Shelton, that he should be selected by Secretary Rusk as the person best fitted to meet the needs of the Province of Queensland, Australia, as Instructor in Agriculture. Prof. Shelton's thorough training under Prof. Manly Miles in the Michigan Agricultural College has borne good fruit in his fifteen years of experience at this College. His year's previous residence in Japan, makes him acquainted with some peculiarities of foreign work; and his wide repute as a teacher of agriculture insures success in the new field. It will be

several months before full arrangements for the position in Queensland are completed, and meanwhile Prof. Shelton will give his work here his fullest attention that his experiments may be, so far as possible, concluded; and his class instructions this fall will be better than ever.

Old students returning will miss the face of Mr. Rogers, who has taught the classes in physics for the past two years, as well as many elementary classes. All his friends will be glad to know that he carries out his plan for extensive study in preparation for the life of a teacher. His clear perceptions, logical accuracy, and honesty of convictions fit him for successful work anywhere.

The Manhattan Horticultural Society has decided to hold a horticultural exhibition in Grange Hall, Friday and Saturday, September 6th and 7th. All persons interested in horticulture, vegetable gardening, and floriculture are invited to participate, not only by visiting the exhibition, but also by placing on display the choicest products of their orchards and gardens. An admittance fee of ten cents for adults and five cents for children will be charged to cover expense. Family tickets, twenty-five cents.

Prof. Walters is rejoicing in the addition to his rooms of six hundred dollars' worth of furniture. Forty-six school desks of excellent pattern, manufactured by the Burlington School Furniture Company of Burlington, Iowa, occupy the center of the room. Twelve desks for standing workers flank these, and his own desk is raised upon a platform in front. Two beautiful cabinets of seventy drawers each are built upon the chimney breasts, to contain the tools of the pupils. The drawers in each cabinet are locked securely from a single key-hole. These are built after Prof. Walters' design by Foreman House of the Mechanical Department.

Slight improvements have been made in various places in the buildings. The apparatus room for Physics has been connected with the Professor's work-room by a door. A store-room for the Printing Office is cut off from the office of the Mechanical Department and connected by a door direct from the office. The unsightly outbuilding in rear of the Chemical Laboratory has been moved into the grove just southwest of Mechanics' Hall. Stair rails have been added in Museum Hall. The greenhouse has been painted outside and in, and the interior arrangement has been greatly improved by addition of a small fountain and basin in the south room and improved shelving in the others. A solid stone floor has been laid in the basement of Horticultural Hall. Outside doors and worn window sash have been refreshed with paint in all the buildings.

Bulletin No. 7, upon "Experiments in Wheat," contains matter of general interest. The average yield of 45 plats, 22 of which had various treatment by cultivation, subsoiling, and manuring, was 41.81 bushels to the acre. Of the 23 plats receiving no special treatment, the average yield was 42.06 bushels, the highest being 53.66 and the lowest 27 bushels. The fact shown, that nothing is better than something this year, calls from Prof. Shelton the following explanation of results: "The above experimental facts show strikingly that the better class of Kansas soils, when well farmed, during favorable seasons, require little in the way of artificial stimulation. There are several facts, however, which have doubtless influenced the results here given, the exact amount of whose influence it has been impossible to ascertain. Thus there was a considerable sprinkling of chinch-bugs in most of the plats, but especially where the growth of the wheat plants was thin and feeble; the mildew also put in appearance in several plats, doing some damage, without doubt, in every case. Many of the plats "lodged" badly, particularly those to which the yard manure, super-phosphate, and nitrate were applied. That the loss from this cause was considerable, can hardly be questioned."

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

GRADUATES AND FORMER STUDENTS.

J. W. Ijams is at work at Ft. Riley.

R. U. Waldraven, '89, is a Riley County teacher.

T. E. Lyon, student in 1887-8, returns to College this fall.

Emma Allen, '89, has the school on College Hill for the winter.

Florine Secrest, '89, is named as one of the Randolph teachers.

N. E. Lewis, '88, works for the Edison Electric Co. of Chicago, Ills.

Mattie I. Farley, '89, will teach in the Fredonia schools the coming year.

W. T. Gray, First-year in 1888-9, goes to Adrian College this year.

Lora L. Waters, '88, has taken the examination for State certificate this week.

W. H. Sikes, '79, is talked of as a possible candidate for County Treasurer.

W. J. G. Burtis, '87, succeeds E. A. Allen as Principal of the Leonardville schools.

J. A. Sankey, student last year, is foreman of the Geuda Springs *Herald* during vacation.

A. O. Wright will teach a year at Rocky Ford before taking his last year in the course here.

Clara A. Short, Second-year in 1888-9, will spend the next year in the State Normal School.

A. A. Mills, '89, has taken advantage of excursion rates to visit his home near Salt Lake City.

W. H. Olin, '89, after a summer's work on the College farm, will teach the Wabaunsee school.

W. R. Browning, '89, will take charge of a hardware store at Lincoln Center during the coming year.

H. M. Culter, student in 1878-9, called this week as representative of the Topeka School Supply Agency.

R. A. Clarke, Second-year in 1888-9, goes to Oberlin, O., in a few days to study music for a year or more.

Mary C. Dial, Second-year in 1885-6, expects to return with a brother and a sister, to re-enter College this fall.

W. E. Whaley, '86, has printed his report of Manhattan Schools in a neat pamphlet for information of the patrons.

Abbie L. Marlatt, '88, will continue her post-graduate studies in Domestic Economy and Sewing this year at the College.

F. C. Sears, Third-year in 1888-9, writes that he will work the farm at home this next year instead of returning to College.

C. G. Clark, '88, took the State examination this week. He expects to begin a special course at Washburn College this fall.

R. K. Peck, Third-year in 1883-4, called at the College last week. He has had employment as a carpenter at Fort Riley this season.

F. A. Waugh, who has been at work in the Horticultural Department since last March, will re-enter College this fall as a Third-year.

W. J. Ehram, Second-year in 1887-8, is at work in the J. B. Ehram machine shops at Enterprise. He intends to continue his studies at Terre Haute this fall.

Fourth-years count up a probable class of twenty-eight for the coming year. Several members of the class take a year of work before completing the course.

Report has it that F. J. Rogers, '85, was arrested at Chicago, on his way to Cornell University, as a suspect. It proved, however, a case of mistaken identity.

A. C. Mitchell, Second-year in 1886-7, called at the College on Wednesday, on his way to share in a game of ball at Junction City, between the club of that city and that of Manhattan.

E. F. Nichols, '88, starts today for Ithaca, N. Y., where he will spend a year or more in special studies, chiefly mathematical and physical, in Cornell University. He will join F. J. Rogers, '85, who is already quartered there.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Southern Kansas Normal College at Longton will open September 2nd.

Superintendent H. M. Johnson of Holton had his salary increased \$300 at the summer meeting of the School Board.

The stone foundation for the new school building is completed, and the first floor joists are being put in place.—*Leoti Farmer*.

Mr. R. W. Stevenson, for seventeen years Superintendent of the Schools of Columbus, Ohio, has been elected Superintendent of the Wichita Schools.

Prof. J. J. Rippetoe, late of Campbell University at Holton, Kansas, has accepted appointment to the chair of mathematics in a university at Spokane Falls, Washington.

Four candidates for State certificates have taken the examination at Manhattan. The examination was also held in Topeka, Lawrence, Emporia, Great Bend, and Garnett.

The first of the County High Schools will be opened in Chapman on Tuesday, September 3rd. Prof. Canfield, author of the law under which these schools were organized, will deliver the opening address.

We sincerely hope that before the next issue of the *Journal* reaches our readers, letters of congratulation from all parts of the State will be pouring in on Chancellor James H. Canfield.—*Western School Journal*.

C. W. Abbey claims the blue ribbon, financially speaking, for his School District No. 19 in Avon and Spring Creek Townships. At the annual meeting the District was out of debt, and the cash on hand was found to be \$216.17.—*Burlington Republican*.

The newly elected School Board at Garnett will have a law suit on its hands. The old Board hired a set of teachers for the ensuing year, but the new Board failed to ratify all the selections, claiming that the old Board had no authority to make contracts. The result will be a law suit.—*Mound City Clarion*.

A. D. Atchison of Morris County has received the appointment of principal teacher at Haskell Indian Institute at Lawrence to succeed Professor Gorman. Mr. Atchison graduated from the Kansas State University in 1877, and for several years past has had charge of the Colored Industrial School in Morris County.

Prominent among the objects of interest in our city may be named McPherson College and Industrial Institute. Its financial standing is free from those perplexing circumstances which attend nearly all denominational colleges in their infancy. Upwards of sixty thousand dollars' worth of property has been purchased in our city by the Dunkards for the purpose of erecting and equipping the College.—*McPherson Freeman*.

Miss Mints, formerly of this place, has worked up a scheme for the establishment of a "memorial school" at Buffalo Park. Citizens of that place have donated twenty acres of land to assist the enterprise. The institution is to be opened on September 11th. Miss Carrie Davis of this County will be the Principal. There will be two other teachers. A feature of this school is to be free tuition for the children of old soldiers.—*Wa-Keeney World*.

EDUCATION VS. RICHES.

In a recent review of Miss Frances Willard's autobiography, we find the following quotation from Miss Willard's recollection of her mother's thoughts: "The dearest wish of my heart, except that my children shall be Christians, is that they shall be well educated. A good education will open the world to you as a knife opens an oyster. Riches will not do this, because riches have no power to brighten the intellect. An ox and a philosopher look out on the same world, and perhaps the ox has the stronger and handsomer eyes of the two, but the difference between the brains behind the eyes makes a difference between the two beings that is wider than all the seas. I want my children's brains to be full of the best thoughts that great minds have had in all the centuries; I want stored away in your little heads the story of what the world was doing before you came—who were its poets, its painters and philosophers, its inventors and law-givers. I want you to know

what is in its noblest books and what its men of science say about their study of the earth, the ocean, and the stars. I want you taught to be careful and exact by your knowledge of figures; and most of all, I want you to learn how to speak and write your own noble English tongue, for without the power of expression you are like an Aeolian harp when there is no breeze."

Partly on account of impecuniosity and partly on account of American "push," there is often too much of a tendency to overlook broad culture, and to regard as a practical education only that which will fit a young person in the shortest time to make the most money.—*New Eng. Farmer*.

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 66 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs.

Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 30 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics, Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frier, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory, with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$500.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms, with six machines, models, patterns, and cases; worth \$550.

Music Rooms, with four pianos, four organs, and other instruments; valued at \$1,500.

A Library, carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory, containing one hundred and fifty stands of arms (breach-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$300.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found in the Annual Catalogue:—

FIRST YEAR.	
Fall Term:	Arithmetic. English Analysis. Geometrical Drawing. Industrial.
Winter Term:	Book-keeping. English Structure. United States History. Free-hand Drawing three times a week. Industrial.
Spring Term:	Algebra. English Composition. Botany. Industrial (Carpentry or Sewing).
SECOND YEAR.	
Fall Term:	Algebra completed. Elementary Chemistry. Horticulture. Industrial.
Winter Term:	Geometry. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking).
Spring Term:	Geometry completed, Projection Drawing. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy).
THIRD YEAR.	
Fall Term:	Trigonometry and Surveying. Anatomy and Physiology. General History. Industrial (Farm and Garden).
Winter Term:	Mechanics. Agricultural Chemistry. Rhetoric. Industrial.
Spring Term:	Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week. Industrial.
FOURTH YEAR.	
Fall Term:	Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
Winter Term:	Logic, Deductive and Inductive. Zoology and Veterinary Science. Structural Botany. Industrial.
Spring Term:	Geology. United States Constitution. Political Economy. Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.
MEN'S W. L. DOUGLAS CALF SHOE, \$3.00.
We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. **LESLIE H. SMITH'S SHOE STORE.**

R. E. LOFINCK has new and second-hand College Books and School Supplies of all kinds. We also have a full line of Stationery, Gold Pens, Musical Instruments, Sheet Music, Music Instruments, and Collections. We have also a magnificent line of Jewelry in both plated and solid. Come and see an old student. Next door to Stingley & Huntress.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

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EDITED BY THE PRESIDENT AND FACULTY

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

NOTES FROM NASHVILLE.

ONE of the very best papers read at the National Educational Association was an essay on "Literature for Children" by Mary E. Burt of Chicago. She advanced the following arguments:—

That the highest motive involved in the teaching of "reading" or "literature" is the moral development of the child.

That morality should not be thrust upon the child, but that he may be left to work out the problem for himself through contemplating the moral growth of mankind as revealed in the literature of man throughout the ages, trusting to his own intelligence to sympathize with the great moral progress.

That nothing short of universal literature or the thought of mankind in its evolution from the early ages to the present day is sufficient to furnish material for carrying such a motive into successful expression.

That the child shall learn to think in centuries instead of short periods of time; in wholes instead of fragments.

Following these propositions, which were generally conceded by the audience, the reader demanded the ousting of the "reader" and the introduction of the "classics."

**

Rev. Dr. Mayo, who is too well known to need a formal introduction, spoke of "The Training of the Teacher of the South," and advanced the idea that all work of the school rests upon the scholarship of the teacher as a true basis. He strongly favored national aid in the establishment of normal schools. Every college should establish chairs of pedagogy where teachers may be trained in the science of teaching. The county institute was enumerated as a powerful factor for pedagogical training, as were also reading clubs and "summer schools." In regard to State Normal Schools, he thought it far better to concentrate all the funds on one good normal than to divide it among several poorly equipped ones. He was also of the opinion that there should be one great national normal school, and that the South would soon be favored in having this located at Peabody Normal College in Nashville.

**

Among the questions asked by members of the Industrial Department in meeting was, "Which is the most proper and effective way for an Agricultural College to advertise its work?" Prof. C. M. Woodward, Dean of the St. Louis Training School, thought the conundrum a rather easy one: "Good and honest work is better than anything else. No first-class school needs to make continued efforts at advertising outside of its own legitimate publications."

**

Prof. J. M. Greenwood, Superintendent of the Kansas City public schools, read a paper on "Educational Statistics," in which he suggested that instead of the old method of rating pupils by percentages and averages still in use in most schools and colleges, a system should be devised which would serve as a chart of reference at any time. In short, what Mr. Greenwood proposed was a kind of autobiography of the child in school. Every pupil was to be furnished with a blank book on the day he entered school. This he should be required to keep with scrupulous care. The first thing to be recorded in it should be every pertinent fact in respect to his parents, their nationality, occupation, education, church, affiliation, and social condition. Then should follow day by day and year after year a full and comprehensive record of

the pupil's scholarship, deportment, attendance, progress or retardation, standing in each branch, physical increase, height, and weight, and every interesting fact connected with the pupil's work and habits. This would furnish him, when he left school, with an invaluable record from the day he entered, and it might serve as a guide in directing his future course in life. Nine out of ten lives are begun and ended without any well-digested idea of the mental and physical capabilities, or how they can be turned to the best advantage of the possessor or the world at large. The method proposed would assist greatly in avoiding such mistakes.

**

The South is waking up in matters of education, and it will be a question of a single decade when the census tables of total illiteracy, excluding people born before the war, will show but little difference in favor of the average northern State. Not until about the year 1870—and even later in some States—was there any marked advance in the education of the masses; but since that time there has been steady progress. It is estimated that since the war the twelve southern States have expended \$125,000,000 upon their public schools. When it is remembered that the State of New York alone has more taxable property—not counting its non-taxable bonds, of which there are almost none in the South—than all of these twelve States, this showing is not discreditable.—Prof. Walters.

THE BUREAU OF EDUCATION.

THE selection of Dr. W. T. Harris as Commissioner of Education is a recognition of distinguished merit. Dr. Harris has for the past twenty years been known over the Union as a strong thinker upon all questions connected with education. To have his sanction in public discussion of any improvement in method or machinery of schools has been to half win the battle. His public utterances have had wide circulation, and have carried weight not only by the earnest spirit of conviction pervading them, but by their peculiar distinctness of expression and fullness of illustration. The philosophy of education has had no clearer exponent than he, and few, if any, are more familiar with the literature of the subject.

In the administrative duties of the office, Dr. Harris will have tact to secure efficient help, and will have clear notions of what is needed. It is to be hoped that the annual volumes will bring the best of matter in statistics and conclusions, and as promptly, too, as Government can do such things. The bulletins issued from time to time have been in the past of especial interest, and they certainly cannot lack under the new regime. The History of Education already begun ought to take to itself a symmetrical unity not as yet secured, and become standard. The general influence of the Bureau is likely to be felt more widely than ever before.

The direct influence of the Bureau of Education is felt through its publications and the public addresses of its head, but the indirect influence is even greater through the line of statistics called for from all classes of schools and the discussions aroused by such calls. To call for reports concerning the grounds upon which various degrees are conferred is to emphasize the need of sufficient grounds. To require reports upon the actual accomplishment in special fields of training is to insure attention to results among those directly responsible for such training. In fact, the Bureau of Education has a powerful lever under the weak side of our educational establishment, and Dr. Harris is a power at the lever.—Pres. Fairchild.

A MISTAKE OF FARMERS.

Secretary Mohler's monthly report contains the following: "Secretary Rusk of the Department of Agriculture recently, in a letter of instructions to his correspondents, in substance said that truthful statistics damage no one except speculators—that is, gamblers. In fact, on general principles, truth hurts no one except those who feed on lies, and cannot thrive on any other kind of diet. Now, if these farmers who so honestly believe that the statistical information they are asked to give is detrimental to their interests would stop for a moment to consider this fact that every State in the Union provides some method by law for collecting these statistics for the benefit, not of the gamblers, but of the people, they would, no doubt, if reasonable men, see that there must be something wrong in the position they take. It is not likely that the people generally of the United States would provide by law means for their own destruction.

"No; the logic of these honest but misguided brethren is bad. Its middle plank is weak. A single step on it breaks it through, and the whole fabric falls in fragments. That middle plank is this: that the grain gamblers depend on the statistics furnished by the farmers for their gambling operations, while the facts are (and these facts are generally well known) that grain gamblers connected with the boards of trade in our large cities have men in their employ, traveling continually during the growing season, in every part of the country, gathering the facts in regard to the acreage and yield of wheat and corn per acre, and other crops; and it is surprising how near they get at the exact facts long in advance of the time the assessors' returns reach this office. These men are experts at the business, and do their work thoroughly. These grain speculators are not, therefore, in any way dependent upon the returns made by the assessors to this Board for carrying on their gambling operations, but are wholly independent of them.

"Now, if the people had no means of collecting these statistics, compiling and giving them to the public, there is no telling what these unscrupulous men would do. The farmers would then be at their mercy. They could withhold the truth from them, and practice their art with direful effect upon the farming world. The farmers would be in darkness and the gamblers in the light. Ignorance can never cope with intelligence in any kind of warfare.

"Just so with our monthly reports. Grain gamblers during the growing season get reports of the condition of crops continually, and the market is 'bullied' or 'beared' according as the news is favorable or unfavorable, but when the State or Government reports come out giving facts from trustworthy sources, these gambling operations are checked, and a truce for a time is called. But suppose no such monthly reports were published by the Government: who knows to what extent these men would go, or how great the fluctuations in prices would be, or how great would be the detriment to the agricultural classes?

"This provision made by the several States and the Government for collecting agricultural statistics is emphatically in the interests of the farmers. It is their bulwark, their means of defense against the unscrupulous attacks of men who for gain would, if they could, draw the last drop of blood from the farmer's veins. Be loyal, therefore, to the agricultural interests, and show your loyalty by your honesty in giving to the assessors a conscientious statement of facts pertaining to farm statistics. Remember also that these statistics are valuable only as they are truthful."

KINDRED INSTITUTIONS.

In Bulletin No. 6 of the Florida Station, we have chiefly reports of analysis of water and soils.

Bulletin No. 5 from the Mississippi Station is a short treatise upon "The Use of Fertilizers," largely a compilation.

Canebrake Station, Alabama, in Bulletin No. 5, details experiments with oats and wheat, especially in the effect of tile draining.

Cornell University Station issues Bulletin VI. on "Hydroscopic Water in Air-dried Fodder," "Determination of Nitrogen," and "Fodders and Feeding Stuffs."

Prof. G. E. Morrow of the Illinois State Agricultural College represented the United States Department of Agriculture at the Royal Agricultural Jubilee Show at London, June 24th.

The Agricultural College of North Carolina has elected to the chair of Botany, Horticulture, and Arboriculture, Prof. W. F. Massey, who will enter upon the work October first.

The Maryland Station issues together Bulletins No. 4, "Experiment Orchard," and No. 5, "Horticultural and Field Experiments." Both are chiefly lists of varieties in cultivation, with brief notes of experiments in progress.

No. 25 of Purdue University Bulletins gives "Entomological Experiments," treating specially of the plum curculio, the clover stem borer, mites, the grain aphid, and others. No. 26 treats of "Wheat Rust," and No. 27 of "Field Experiments with Wheat."

Bulletin No. 7 of Minnesota Station is a pamphlet of nearly 100 pages, dealing with soil temperatures, varieties of corn for ensilage, selection and cross fertilization of corn, washing and salting butter, greenhouse walls, varieties of potatoes, chemistry of wheat, and influence of food upon the growth of the skull and teeth of pigs.

KANSAS THRIFT.

Forty-two fairs will be held in Kansas this fall.

A second sugar factory is among the probabilities at Attica.

The Inter-state Deep Harbor Convention meets in Topeka October 1st.

Bonds amounting to \$8,000 have been voted for the syrup factory in Stevens County.

The Rock Island Railway is preparing an extensive exhibit of Kansas products for the fairs at St. Joseph, Kansas City, and Topeka.

According to the *Union*, Junction City is much interested in the deep-water project on the Southern coast, the Missouri, Kansas, and Texas Railway placing that city in direct connection with the Gulf.

Burns, a small town in Butler County, has a State reputation for its large trade in hay. There are six presses running now, and the town is crowded with loaded wagons. One hundred tons were sent out one night to Kansas City.

The first fruit of Mr. Firmin's labors in Paris appeared in the person of Mr. Charles Thuillot. He comes here upon a prospecting tour, and if pleased with Kansas a company of relatives and friends will follow.—*Florence Bulletin*.

Little seven-year-old Maude Dean, living nine miles southeast in Crystal Plains Township, has ploughed twelve acres of ground with a three-horse riding plough. This she did alone while her father was away from home threshing.—*Smith Center Bulletin*.

The Hays City *Times* tells of the completion of arrangements to establish a paper mill there. The farmers guarantee 5,000 tons of straw at \$2 a ton. The capacity of the mill will be about ten tons of straw paper daily, and it will employ from thirty to thirty-five hands.

Despite the fact that many fields were damaged in shock by wet weather, the supply of bright oats is so great that the farmers hardly know what to do with them. Nearly every farmer has raised more than he can feed, and when put on market they "go begging" for ten to fifteen cents a bushel.

The soap weed is now being utilized for making soap for markets. A factory has been started at Guthrie and Wichita where the weed grows plentifully. The pioneers of the plains discovered its use forty years ago. The root, without any manipulation, is an excellent substitute for a bar of soap.—*El Dorado Republican*.

B. Langtry of Cottonwood Falls recently shipped a large display of corn, vegetables, and fruit to his old home in Jefferson County, N. Y., in support of his assertion that better crops were raised in Kansas than could be produced in the Empire State. The corn was shipped on the stalks, which measured fifteen feet in length.

The Argentine Water and Electric Light Company have let the contract for \$75,000 worth of work in the construction of the plant for the company. The plant will contain two Dean pumps with a capacity of 1,250,000 gallons each per day, and the supply of water will be taken from a series of ten wells sunk to bed rock.

The sugar mill at Ness City is rapidly approaching completion, and when ready for the cane, which will be about September 10th, will have cost \$150,000. It will have a capacity of 300 tons per day. Ninety days will be required to work up the amount of cane now on the ground. The machinery is the best that could be purchased, and has been put up in the most skillful manner.

The company erecting the sugar plant at Medicine Lodge have out several experimental fields of sugar beets. Prof. Edson chemically tested the beets, and ascertained that it was not unusual to find 11.35 per cent of sugar in the specimens. This year the works will handle but 100 tons of sugar beets, but if the experiments are satisfactory a larger acreage will be planted next year.

The Wellington *Monitor* tells this story of a successful farmer in Rush County, but forgets to mention his name. Who knows him? The *Monitor* says: "A farmer in Rush County has succeeded in raising fifteen crops of corn in the last seventeen years, hot winds to the contrary notwithstanding. He mixes a number of varieties of seed corn, ranging from very early to very late. If the hot winds kill the bloom on one variety, there will soon be bloom on the next later kind, which will

fertilize the ears on its own stalks and on those whose bloom had been killed. The plan may be worthy of consideration."

The "Harvest Excursions" upon all the great railroads running through Kansas ought to bring a host of friends from the East to see this land of plenty in all its magnificence of thrifty farming. The excursion trains leave Missouri River points on September 10th and 24th and October 8th. The rate is one fare for the round trip, with a limit of thirty days, and stop-over privileges either going or returning.

Newton people have organized a kind of "improvement society," having for its object the up-building of the town. Money and lands to the amount of \$500,000 have been subscribed, part of which will go to secure the location there of one of Armour's famous packing houses. Newton is confident, too, and apparently with good reason, of one day numbering among her good things the Atchison, Topeka, & Santa Fe Railway machine shops and division.

The following from the Grenola *Chief* will apply to nearly all parts of Kansas: "I will be glad when the fruit season is over," remarked the express messenger, as the train pulled in and about two tons of different kinds of fruit was passed into his car. During the past two weeks the firm of McKean & Co. has shipped not less than three tons of fine apples, peaches, pears, grapes, etc., per day. For the information of that tired messenger, we will state that the fruit crop of the Caney Valley has just commenced to come in."

TRAINING OF AMERICAN ARTIZANS.

A correspondent from the Paris Exposition to the *Church Union* offers the following suggestions: Success in the industrial world today is the success of trained intelligence, not of muscle. Brains have given American machinery its high rank in the markets of the world. Are there brains enough to make American applied art of equal value? Our ability in the one field has been thoroughly proved. In the other the indications are that we possess tact, quickness, adaptability, and considerable readiness in assimilation and combination, even if we are deficient in creative power. But these generalities, based largely upon the results of certain prize competitions, are obviously of little value. Instead of one type, we have to deal with every race in our cosmopolitan cities. The simple truth is that our possibilities are unknown, because there has never been any general interest in the training of American artist-artizans.

And so I come back to the starting point. Will the result of the Paris Exposition help to teach the indifferent the consequence of the finer industries? We have outgrown the pioneer stage, and the stage of reliance upon the coarser manufactures. Our prosperity is no longer merely a question of gathering lumber by the shipload, or wresting the precious metals from the earth, or even of reaping wheat by the square mile, or slaying hogs by the thousand. Natural resources must be supplemented not only by mechanical ability which we have, but by the trained taste which will transform the ore or clay, the textile fabric, the wood or leather, into a thing of beauty and realize its highest possible value.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$14 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

CALENDAR.

1889-90.
 Fall Term—September 12th to December 20th.
 Winter Term—January 7th to March 28th.
 Spring Term—March 31st to June 11th.
 June 11th, Commencement.
 1890-91.
 Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Examinations for admission at nine o'clock next Wednesday, September 11th.

The lawns have been freshly mown in anticipation of the opening of College next week.

College opens with chapel exercises at nine o'clock Thursday morning, September 12th.

The College has sold to C. L. Thomas of Dwight, one of the young Berkshire boars in stock.

Prof. Brown has spent a part of his summer vacation in preparing large charts for the Department of Music.

Mrs. Winchip is spending a week in Topeka studying the latest devices in dress-making for the benefit of her classes.

The Cruickshank bull, Scottish Chief, under three years, although in only ordinary flesh, weighs an even 2,000 pounds.

Lieut. Morrison is made happy by the return of Mrs. Morrison from Fort Leavenworth where she has been visiting her father.

The patches of kohlrabi—about an acre in all—attract the attention of all visitors. Some of the bulbs will weigh ten pounds.

The Farm has a superior lot of Poland China and Berkshire pigs of both sexes, which are offered for sale at very reasonable prices.

A multitude of applicants for information are heard from daily. The new class admitted this fall is likely to be a large one.

The INDUSTRIALIST accepts with thanks complimentary tickets to the Kansas State Fair and the New Era Exposition at St. Joseph.

Mrs. Kedzie, having rented her house to Assistant Willard, will make her home this year with Mrs. Jonathan Davis at the Todd place.

Prof. Shelton and family and Mrs. Kedzie returned on Wednesday afternoon to find Kansas the coolest summer resort found in their journeyings.

The pressure of duties in all departments from the settlement of hundreds of new students in their classes will prevent the issue of the INDUSTRIALIST next week.

A stalk of College ensilage corn sixteen feet in height, with the ear ten and a half feet from the ground, was among the attractions on Poyntz Avenue last week.

If any are wishing for student help in the way of work for board, a note to Secretary Graham will bring the fact directly to students who need such opportunities.

Mr. A. B. Dills of Edgerton Johnson Co., called on Monday, seeking a place for his son and daughter for the coming year. He expressed delight with the place.

The College shares to a limited extent in the exhibit of the Manhattan Horticultural Society; but those who wish to see the multitudes of varieties in growth will have to visit the College itself.

Harrington's patent corn cutter, sent to the College several weeks ago by the patentee, has been put to the test in cutting ensilage corn, and has proved quite satisfactory. It is a great labor-saving device.

Prof. Shelton reports that this has been the best season in sixteen years for tame grasses of all kinds. Grass sown last spring has, in most cases, been mowed twice, and now affords excellent pasturage in great abundance.

The Rock Island Railroad is gathering from the stations upon its various routes through the State an enormous collection of Kansas products for display at the various fairs of general importance. There were gathered at the College yesterday a

goodly number of varieties of tall corn, corn in the ear, kohlrabi, tall sorghum, and various forage plants, with a few samples of fine potatoes, tomatoes, etc.

Prof. Shelton has named to the Queensland authorities the first of January as the earliest date at which he can leave his work here. He will work up the data of experiments for this season for the Annual Report of the Station before leaving.

Silos No. 1 and 2, with a capacity of ninety and forty-five tons respectively, have been filled with corn silage, the Southern Horsetooth and B. & W. varieties being used. The new silo, of 100 tons capacity, will be filled with sorghum silage in about ten days.

Prof. Shelton has received many demands for different varieties of wheat. Except Zimmerman, the standard sort raised on the College Farm for several years, none is for sale. This variety is offered at ninety cents a bushel, sacked and delivered on cars at Manhattan.

All college folks notice with thanksgiving the good work done at the instigation of His Honor, the Mayor, in clearing weeds from the walk leading to the College. Slight repairs upon some of the crossings, notably at the College gate, will bring another round of thanks.

Rev. Joseph Denison D. D., the first President of this College, spent several hours recently in visiting the several buildings, most of which he had never seen. Mrs. Denison, Mrs. Goodnow, and Miss Parkinson accompanied him. All expressed pleasure in the visit, though the Doctor was vividly reminded of his ten years of struggle in the beginning on the old location.

The College Young Men's Christian Association have made up, for distribution among new students, a neat pamphlet of information concerning the meetings of the two College Associations, the College Societies, the City Churches, boarding places, etc. It will be a convenience to many to find information ready on their arrival, and all will appreciate the friendly greeting implied in this provision.

The following from the *Augusta Journal* is one of many favorable notices of Prof. Olin's vacation work in Southwestern Kansas: "The lecture of Prof. O. E. Olin on Tuesday evening was largely attended and well appreciated by students and citizens. His subject, 'Personalities,' was handled in a most able and interesting manner, and his large audience was held in the closest attention throughout. A warm welcome is assured Prof. Olin by the citizens of Augusta and the students of the County Normal whenever he may happen around this way."

The farmers' reunion at Wilson, Ellsworth County, on Friday and Saturday of last week, proved to be a pleasant gathering of rejoicing people over the bountiful wheat-harvest, and the prospective corn crop. It was reported that wheat is yielding at the threshers beyond expectations. Several crops were mentioned as giving fifty-six bushels to the acre, and the average for the County is placed as high as thirty-five bushels. With the general good feeling, most of the speeches fell into the line of congratulation. Pres. Fairchild chose for his theme the general idea of thrift, extending it to a wholesome, earnest life of usefulness, a making the most of one's abilities.

THE WEATHER FOR AUGUST.

Of the thirty preceding Augusts covered by our record, eight have been cooler than the one just past,—1862, '66, '70, '75, '82, '83, '84, and '87,—the mean temperature for the series of thirty-one Augusts being 75.87°, and for August, 1889, 74.06°, or 1.81° below the average. The highest temperature for the month was 97° on the 13th; the lowest, 51° on the 21st, a range of 46°. The mercury was as high as 90° on fourteen days.

Rain in measurable quantities fell on six days. The total for the month was 2.48 inches, which is .98 inches below the average for August. The total rain-fall for the year 1889 up to September 1st is 25.28 inches.

The total run of the wind for the month was 5,617 miles (the record of one day was lost). This gives a mean daily velocity of 187.23 miles, and a mean hourly velocity of 7.8 miles. The highest velocity was 25 miles an hour on the 26th, between 11 A. M. and noon. The highest daily velocity was 386 miles on the 19th; the lowest, 63 miles on the 2nd.—*Assistant Chemist Breese.*

GRADUATES AND FORMER STUDENTS.

E. M. Paddleford, '89, has a school engaged.

H. C. Rushmore, '79, is in business in Alabama.

Mary C. Lee, '89, takes a school in this County for the winter.

O. L. Utter, '88, is teaching at Olsburg, where he taught last winter.

E. J. Ayers, student in 1885-6, is employed in an express office at Salina.

D. E. Bundy, '89, will teach in the northern part of Riley County this winter.

A. B. Kimball, '89, teaches the school in the Moehlman bottom this winter.

E. D. Anderson, Second-year in 1883-4, is Postmaster at Louisville, Kan.

Elizabeth W. Perry, Second-year in 1886-7, teaches at Maple Hill this winter.

Jennie C. Turnell, '89, entered upon her duties as Assistant Librarian on Monday.

Jennie Smith, Second-year in 1888-9, is teaching this winter beyond Deep Creek.

G. V. Johnson, Second-year in 1885-6, has returned to take up his course of studies again.

S. I. Wilkins, student in 1886-7, has returned, after two years' absence, to continue his studies.

H. Elsie Richardson, Second-year in 1886-7, is to teach near her home in Wakefield this winter.

G. W. McCoy of Wilson, student in 1885-6, has been admitted to the bar of Ellsworth County.

W. L. Thickstun, Third-year in 1887-8, writes from Rich Hill, Mo., where he has a clothing store.

J. MacMaster of Ellsworth, student in 1885-6, was met at the farmers' reunion last week at Wilson.

S. C. Wynkoop, Third-year in 1888-9, is located at Paw-Paw, Mich., where he is engaged in library work.

C. A. Murphy, '87, writes to have his INDUSTRIALIST changed from Idana, Clay County, to Emporia.

M. L. Graves, student in 1886-7, has returned to continue his course, bringing a new student with him.

O. G. Harmon, Second-year in 1887-8, teaches in Dunlap, Kan. He hopes to return to College next March.

H. W. Stone, with the Class of '89, called at the College recently. He is clerk in a picture store at Topeka.

Mary M. Mechem, student in 1882-3, writes from Spring Hill, inquiring about the examination for State certificates for teachers.

Letters from Washington, D. C., speak of Lewis W. Call, '83, as doing well in his place as law clerk in the Department of Justice.

C. N. Russell, student in 1875-6, whose failing health has been recognized for two years past, died at Des Moines, Iowa, August 24th.

K. C. Davis, second-year student in 1888-89, drops out for a year to do reportorial work on his father's paper, the *Junction City Tribune*.

S. S. Cobb, '89, is employed as compositor in the office of *Our Brother in Red*, at Muskogee, Ind. Ter. He hopes for advancement soon in his chosen trade of printer.

E. A. Allen, '87, returned on Monday from a successful month in the Rawlins County Institute. He will spend the coming year at Blue Mound, Linn County, as Principal of the city schools.

Mattie Cobb, '88, writes from Lester Seminary, Holden, Mo., where she is teaching, that as she settles down to work for the year she cannot do without the INDUSTRIALIST, and orders it for a year.

Bertha H. Bacheller, '88, will pursue post-graduate studies here this year, having charge of classes in telegraphy and perhaps in other studies. She has had several years of experience in teaching.

Prof. S. W. Williston, '72, contributes to the Proceedings of the Academy of Sciences of Philadelphia, a careful study of the sternalis muscle, with record of a peculiar development found in the anatomy room of Yale.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The enrollment of the Manhattan Schools the first day was 575.

The total school population of Topeka, as returned by the school enumeration, is 11,140.

The foundations of the Nescatunga school building are giving away, and the structure is in danger of collapsing. The building cost \$4,000.—*Cold-water Enterprise*.

The teachers and people of Kansas should ask the next Legislature to increase the appropriation to county normal institutes from \$50 to \$100.—*Western School Journal*.

The best teacher of morals is he who teaches by example. Then one of the first qualifications of a teacher must be an unquestioned character of moral uprightness—it is indispensable.—*Dodge City Advocate*.

D. B. Russell, Jr., a School District Treasurer of Kearney County, recently sold school district bonds to the amount of \$15,000, since which time he and the funds have been missing. He is believed to have located in Canada.

The prospects for a large attendance at the State University are very good. The demand for catalogues was so great that the first edition of 10,000 copies was exhausted over a month ago, and a second edition had to be issued to cover the demand.

County Superintendent Danner of Harvey County about a year ago adopted the plan of grading the county schools and holding an annual commencement at the opera house at Newton. The plan worked so well that the commencement was repeated again this year. There were thirty-three graduates, representing sixteen districts.

The plan of some School Boards to saw the wages of teachers down to starvation price is the worst possible plan for the promotion of good schools. How can you expect to get a good school teacher at wages which foot up for the year's work less than those paid for an average farm hand? By that plan money may be saved, but the children will grow up dunces.—*Manhattan Mercury*.

Charles T. Beach, for years one of our most successful county teachers, and for four years Superintendent of the county schools, has received notice of his appointment as a Superintendent of Indian Schools. He is assigned to the mission at Colton, San Diego County, California, and will have charge of seven schools with 800 pupils, and his salary will be \$1,200 per annum.—*Independence Tribune*.

Prof. James H. Canfield of the State University, the President of the N. E. A., writes that the copy for the annual report went to the printer on September 3rd, and that the volume will be issued early in December. The printing and binding will be done by the Kansas Publishing House, Topeka, which is under the management of Clifford C. Baker, State Printer. Every teacher should have a copy, whether he was in Nashville or not.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principal part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general-purpose barn, 48 by 66 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology. Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frierzer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory. with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$300.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms. with six machines, models, patterns, and cases; worth \$550.

Music Rooms. with four pianos, four organs, and other instruments; valued at \$1,500.

A Library. carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory. containing one hundred and fifty stands of arms (breach-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$300.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

Michigan Agricultural College enrolls in its annual catalogue 340 students, and enumerates among its graduates 93 farmers, 11 horticulturists, 5 stockmen, 4 seedsmen, and 15 professors of agriculture and kindred sciences.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found in the Annual Catalogue:—

FIRST YEAR.

Fall Term: Arithmetic, English Analysis, Geometrical Drawing, Industrial.

Winter Term: Book-keeping, English Structure, United States History, Free-hand Drawing three times a week, Industrial.

Spring Term: Algebra, English Composition, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed, Elementary Chemistry, Horticulture, Industrial.

Winter Term: Geometry, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).

Spring Term: Geometry completed, Projection Drawing, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying, Anatomy and Physiology, General History, Industrial (Farm and Garden).

Winter Term: Mechanics, Agricultural Chemistry, Rhetoric, Industrial.

Spring Term: Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week, Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.

Winter Term: Logic, Deductive and Inductive, Zoology and Veterinary Science, Structural Botany, Industrial.

Spring Term: Geology, United States Constitution, Political Economy, Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.

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We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. **LESLIE H. SMITH'S SHOE STORE.**

R. E. LOFINCK has new and second-hand College Books and School Supplies of all kinds. We also have a full line of Stationery, Gold Pens, Musical Instruments, Sheet Music, Music Instructors, and Collections. We have also a magnificent line of Jewellery in both plated and solid. Come and see an old student. Next door to Stingley & Huntress.

THE INDUSTRIALIST.

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 A. C. MCCREARY, Janitor.
 W. T. SWINGLE, Assistant in Botany.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

THE NATIONALIZATION OF INDUSTRY.

THE nationalization of all industries is no new idea, but until quite recently it has never received very much support except from a certain section of those actually engaged in industrial work. The professional class,—the brain workers,—as a rule, have not favored it. The Knights of Labor, a large and influential association, have for some time urged the control of the means of transportation and communication by the Government, and a number of brain-workers have announced their adherence to this; but not until about a year ago was there any organized movement among the professional class in the direction of the nationalization of all industries. Now, however, this movement has grown to such proportions that it well merits attention. Among its adherents are numbered such men as Edward Everett Hale, a prominent divine and writer; Thomas Wentworth Higginson, a well-known literary man; General Devereux, of Gettysburg fame, and many others. Clubs have been formed in the large cities and some of the smaller towns, and now two periodicals are entirely devoted to the promulgation of this idea.

The movement can be directly traced to a socialistic novel, entitled, "Looking Backward," by Edward Bellamy, which was published a little more than a year ago, and has now reached its one hundredth thousand. The popularity of this book can hardly be attributed to its style and plot which, though commendable, are not very much above mediocrity; nor yet to the originality of the ideas, though there are many fresh thoughts scattered through its pages. What Mr. Bellamy has done, however, and in a remarkably successful manner, is to give the socialists' dream "a local habitation and a name." He has given us a picture of society and government in which the principle of competition has given place to co-operation on a national scale. He has also announced the steps which society will take to reach that goal, and has answered many of the popular objections to the scheme. His picture of society as it is at present constituted is so vivid, and, in most respects, so true to life, that we cannot forbear inserting it:—

By way of attempting to give the reader some impression of the way people lived in those days [the present time], and especially of the relations of the rich and poor to one another, perhaps I cannot do better than to compare society as it then was to a prodigious coach which the masses of humanity were harnessed to, and dragged toilsomely along a very hilly and sandy road. The driver was Hunger, and permitted no lagging, though the pace was necessarily very slow. Despite the difficulty of drawing the coach at all along so hard a road, the top was covered with passengers who never got down, even at the steepest ascents. These seats on top were very breezy and comfortable. Well up out of the dust, their occupants could enjoy the scenery at their leisure, or critically discuss the merits of the straining team. Naturally such places were in great demand, and the competition for them was keen, everyone seeking as the first end in life to secure a seat on the coach for himself, and to leave it to his child after him. By the rule of the coach, a man could leave his seat to whom he wished; but, on the other hand, there were many accidents by which it might at any time be wholly lost. For all that they were so easy, the seats were very insecure, and at every sudden jolt of the coach persons were slipping out of them and falling to the ground, where they were instantly compelled to take hold of the rope and help to drag the coach on which they had before ridden so pleasantly. It was naturally regarded as a terrible misfortune to lose one's seat, and the apprehension that this might happen to them or to their friends was a constant cloud upon the happiness of those who rode.

But did they think only of themselves? you ask. Was not their very luxury rendered intolerable to them by comparison with the lot of their brothers and sisters in the harness, and the knowledge that their own weight added to their toil? Had they no compassion for fellow beings from whom fortune alone distinguished them? Oh yes; commiseration was frequently expressed by those who rode for those who had to pull the coach, especially when the vehicle came to a bad place in the road, as it was constantly doing, or to a particularly steep hill. At such times, the desperate straining of the team, their agonized leaping and plunging under the pitiless lashing of Hunger, the many who fainted at the rope and were trampled in the mire, made a very distressing spectacle, which often called forth highly creditable displays of feeling on the top of the coach. At such times the passengers would call down encouragingly to the toilers of the rope, exhorting them to patience, and holding out hopes of a possible compensation in another world for the hardness of their lot, while others contributed to buy salves and liniments for the crippled and injured.

Now, though this is rather in the nature of a

caricature of society than a faithful photograph, yet it has in it so many elements of truth that one is compelled to give general assent to its correctness and ask himself seriously if there is no way to remedy this state of affairs. Is it true that society could not get along unless the many pull on the rope and the few ride? Cannot this pulling of the coach be made easier, and be conducted in a more orderly, peaceable fashion? Is it inevitable that those who grow weak from old age or sickness should be trampled to death?

Mr. Bellamy replies by painting for us a picture of society in the United States in the year 2000. We will then have, he thinks, an industrial republic. The Nation, having assumed direct control of all industries, musters into its service every year all young men who have attained the age of twenty-one, and discharges on full pay all who have reached the age of forty-five. Volunteers are asked for the different industries; and if there is over crowding in any one, the hours are lengthened or privileges decreased, and in this way the various branches of work are made equally attractive. The thought is that, other things being equal, a man will prefer to do that which he can do best. Everyone must serve for his first three years as a common laborer.

Provision is made for the brain-workers as well as the hand-workers. Government institutions are always open to aspirants under thirty years of age, but only those who have special aptitudes enter them, because the work is so thorough and the examinations so rigid it would be impossible for any others to stand the tests. A credit corresponding to his share of the annual product of the nation is given to each citizen at the beginning of the year, and his wants are supplied, up to the amount of this credit, from the public stores. All share alike. It is considered that if one does the best he can, he is entitled to an equal share in the total product, no matter if others' work is of a higher grade or greater in amount.

The objection that, judging from our present experience with public offices, it would be difficult to fill so many positions with honest and competent men, is answered by saying that there would be no temptation to cupidity, as everyone would be sure of a comfortable income, and also, as all places of honor would be in the gift of the Government, and everyone's livelihood depended on the Government, good men would willingly offer themselves, and surely would be given the preference.

There would naturally arise in one's mind the question whether, if men were assured of a regular income, they would strive to do as little as possible instead of their best. To this Mr. Bellamy replies that human nature has other motives save fear of want and love of luxury; that for the grandest class of efforts, the most absolute self-devotion, quite other incentives are depended upon. Honor, hope of man's gratitude, patriotism, and the inspiration of duty are motives set before the soldiers when it is a question of dying for the nation; and never was there an age of the world when those motives did not call out what is best and noblest in men. He alludes, also, to the fact that when the love of money is analyzed it will be found that the dread of want and the desire of luxury is but one of several motives which the pursuit of money represents; the others, and with many the more influential, being desire of power and social position and reputation for ability and success. Now these latter incentives remain, and only the former would be removed. There are a large number of such objections raised and plausibly answered, and the scheme is elaborated to quite

minute details. The author does not expect to see such a plan adopted at once, but he evidently, and with good reason, believes we will move in that direction unless something unforeseen occurs. The rapid consolidation of business in a few powerful hands, the combinations of capital, and now the great co-operative movements of labor, cannot fail to suggest the logical outcome—the control of both wealth and labor by the Government, and in the interest of the whole people. The co-operative exhibition at the Crystal Palace, London, has opened the eyes of many who believed it impossible for such establishments to be managed successfully. Great Britain has now 1,500 co-operative unions, having a membership of 992,428. In 1888, \$17,072,035 profit was made on sales of \$183,675,325. \$125,100 was devoted to education, and \$38,000 to charity. Men are learning more and more to work together for the general welfare. Municipal governments, both in England and the United States, are quite generally assuming control of water and light works, and in some cases of street transportation. This must be regarded as a movement in the direction of the nationalization of all work of a public nature.

The great element of uncertainty in Mr. Bellamy's plan is the way human nature will act under such new conditions and in the absence of motives that have been present as a stimulus to exertion from the earliest times. It is impossible to foretell accurately what would be the result, and we imagine that the great majority will think twice, perhaps many more times, before actually committing themselves to such a radical plan. It is bad to be partly in the power of a soulless corporation, but it might be a little worse to be entirely in the power of a majority which is capable at times of doing some very selfish and unreasonable things. Besides, too, there is a possibility that the movement might not stop with the control of our industrial affairs. The temptation might be irresistible to go on and manage our religious life, social life, etc. Mr. Bellamy, in replying to Prof. Ely of Johns Hopkins University, who comes out in favor of nationalizing railroads, telegraphs, and express companies, says, but does not wish to go farther, that you might as well try to stop a loaded toboggan half way down a steep hill. The question comes to us whether Mr. Bellamy's plan is the bottom of the hill.—*Prof. White.*

OUR COUNTY FAIRS.

AN examination of the official list published by the State Board of Agriculture reveals the fact that sixty-four county fairs are held in Kansas this fall. This is not a bad showing, but it might be better. In Kansas there are 106 counties, in more than three-fourths of which—and in all those lying east of the Sixth Principal Meridian—fairs should be held every year. There is an abundance of material for successful exhibitions every year, and the fact that they are not held regularly in some counties, and in others not at all, reflects seriously upon the enterprise of those counties.

Some counties could not make a creditable display, says one. A fair need not be regarded solely as a showing of the material wealth of a county. While it is proper for the older counties to make such an exhibition for advertising purposes, and for the pleasures to be derived from feasting the eyes on a grand collection of farm products, the new counties of the western part of the State should hold these exhibitions for an entirely different purpose—that of instruction. Every fair should be a kindergarten, and the teachers should be the farmers who are able to make the best display. Methods should be compared, probable causes of success or failure stated, and a general experience meeting follow. The successful farmer should

have no secrets as to methods or varieties, but give his less fortunate brother the benefit of his experience, and at the same time try to impress upon him the fact that old-time methods are being abandoned; that brains are the successors of luck on the farm; that reading, thinking, and careful experimenting are necessities, not luxuries in which his richer neighbor alone can afford to indulge.

There ought to be a common interest in a fair. It should be of the county, for the county—for the people of both town and country. The sturdy farmer who withholds his patronage from what he terms an "agricultural hoss trot" might accomplish wonders in looking after the interests of the strictly farm departments of the exhibition; while the horsemen should be encouraged to make their part of the show worth looking at. If there be races,—and there always will be in connection with fairs,—let them be good races, fairly conducted, with pool-selling prohibited. Let every department, from the curio corner in Art Hall to the chicken and duck coops, be full, and each be placed under the charge of some one who is interested in the things exhibited there.—*Supt. Thompson.*

"BOOM" IS DYING.

HAS anybody noticed that the word "boom" is not often seen now-a-days in Kansas newspapers? Such is the case. Editors carefully avoid the word as meaning the rapid improvement or development of a town or other object. In the majority of cases, "boom" has proved disastrous, and has earned for itself a definition by which it might properly be regarded as a contraction or corruption of boomerang. Certain it is that the term possesses the chief characteristic of that instrument. Lexicographers of the future will define "boom" as an abnormal, unhealthful growth which, on subsiding or disappearing, leaves the object of its attack in a paralytic state. "Boom" is distasteful, obnoxious. Until somebody coins a word to take its place, let us say of our State, our towns, our projects, that they are growing or improving; but booming, never.—*Supt. Thompson.*

PATENTS OF THOMAS A. EDISON.

Telegraphy.—Printing and automatic, 52; chemical and perforating, 34; perforating machines, 6; chemical stock printer, 1; multiplex, 17; relays, 8; switches, 2; phonoplex, 3; induction relay tel., 2; acoustic, 2; amr. and ind. signal app., 4. Electric Lights.—Incandescent lamps, 104; arc lamps, 4. Distribution.—Systems of regulation and indicating devices, meters, sockets, switches, 66. Generation.—Dynamoes, motors, 3; transmission of power, 54; regulation, 50. Railways.—Electric motor and tracks, 8. Conductors.—Underground and overhead, 3. Telephones.—Transmitters and receivers, 32. Batteries.—Galvanic and secondary, 3. Phonography, 21. Ore Milling, 4. Miscellaneous.—Electric pen and pencil app., 66; typewriter, 3; shafting, 1; malleable iron, 1; vocal engine, 1; preserving fruit, 1. Total, 493. Besides these he has over 300 applications for patents pending on all subjects.

The various interests bearing his name own many hundred other patents covering details and modifications of Mr. Edison's inventions.—*W. F. Hammer, in Electric World.*

KINDRED INSTITUTIONS.

Among the valuable bulletins prepared in the office of Experiment Stations of the U. S. Department of Agriculture, is one, now approaching completion, which will be found of infinite service to the workers in our Experiment Stations, to agricultural journalists, institute directors, etc. It will be known as Experiment Station Bulletin No. 2, Part I, and is a very complete digest of the annual reports of some thirty Agricultural Experiment Stations of the United States for 1888. The special feature of this work is the index, which is very full and complete, being not only an index to the digest, but practically an index to the reports themselves which are included in the digest. The work, with the exception of the index, is already in type, and will soon be completed and ready for distribution. It is issued as part I, the intention being to include a digest of the reports of the remaining stations in another volume to be known as part II. This digest work will thereafter be continued periodically, so as to cover all the Experiment Station reports.—*Kansas Farmer.*

KANSAS THRIFT.

A new mill has just been completed at Turon. Ellsworth is to have electric lights in a few days. New corn has been marketed and ground into meal at Arlington.

Bonds have been voted at Salem for the Kansas Northern Railway.

The farmers of McPherson County raised 4,000 acres of broom-corn this year.

Attica creamery butter is being shipped in refrigerator cars to New Orleans.

Nearly every farm-house in the State is turned for the present into a canning factory.

The Missouri Pacific Railway Company is building a large stock-yard at Council Grove.

It is said that the new Santa Fe management will move all the Santa Fe offices from Chicago to Topeka and consolidate everything there.

Jewell County stands second as to acreage planted to corn. While Marshall heads the list with 158,997 acres, Jewell follows close with 157,059 acres.

The Attica sugar works are in successful operation. The President of the company is highly pleased with the sugar-producing qualities of the cane raised in Harper County.

According to the McPherson *Republican* there is talk of a new road from Omaha by way of Salina to connect with the road now in process of construction from Hutchinson to Kingman.

The new vault of the State Treasury at Topeka is said to be the most perfect of the kind in the world. Eight car loads of material, including 30,000 bolts, were used in its construction.

Reports begin to appear in papers of the State of the many county fairs which have already been held. They all tell of great displays of the productions of the soil, and big crowds of happy people.

One man who has peas planted for the Wetmore canning factory reports a yield of fifty-eight bushels to the acre the first picking, and that he will get twenty more bushels from the second picking.

That canning factories are a benefit to the community in which they are located is endorsed by the fact that the pay-roll of the Emporia factory, for the week ending August 24th, amounted to \$1,975.—*Madison News.*

The Interstate Industrial Exposition of Chicago recognizes the *INDUSTRIALIST* in an invitation to its exhibition between the dates of September 4th and October 15th. Kansas has a display of products there, as well as Colorado and California. Reduced fares on all lines whose terminus is Chicago.

The exhibit of fruits made by the Manhattan Horticultural Society last week was one to be proud of. No premiums were offered, and every exhibit was an expression of pure interest in horticulture itself. Twenty-three persons contributed, and of all kinds, exclusive of flowers, there were 433 plates. Among the articles shown, the 63 plates exhibited by T. C. Wells, the 47 from G. Spohr, J. C. Van Everen's splendid display of nineteen varieties of grapes, and Miss Ivy Kellerman's table of twenty-six species of forest and field products deserve special mention.

The following extract from an article in the *Howard Courant* shows what may be accomplished on a Kansas farm by sticking to business: "Mr. Gibson is well known to our people, and to the farming and banking people of Southern Kansas. He has for several years been Vice-President of the First National Bank of this city, and his success in a financial way has been remarkable, and stamps him as a man of rare business ability. He came to old Howard County in a wagon in 1869, and located on the farm he still owns. By close attention to business, he has since that time gradually absorbed the surrounding tracts till his farm now foots up 3,200 acres. It has commodious buildings—residences and barns; is stocked with 780 cattle, 110 horses, and 80 young mules; it is fenced with nine miles of stone wall, besides other division fences. Over 1,000 acres of the farm are in cultivation, and 340 acres are in tame grass. He has immense orchards and everything on a grand scale."

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at *par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Popenoe and family spend several days at the State Fair this week.

Prof. Shelton spent a day at the State Fair, this week, acting as judge of cattle.

A day at the fair is a part of this week's experience for Messrs. Breese, Baxter, Marlatt, and McCreary.

Dr. Swaney and Judge Pipher called for a few moments on Tuesday morning to see the crowd of new students.

Prof. Walters is mentioned as visiting his friends in Hanover, Washington County, where he once made his home for a time.

H. Lyman proposes to run a covered carriage to and from the College on rainy days, charging ten cents each way for passengers.

The Sewing Rooms present a busy array of 102 seamstresses of all grades. Mrs. Winchip has the assistance of Miss Abbie Marlatt, '88, in these large classes.

Rev. Mr. Broad of Topeka and Rev. F. J. Rice of Wamego took part in the chapel exercises of Monday morning. Rev. G. H. Perry of the *Nationalist* escorted them through the buildings.

Foreman House has been confined to his bed for nearly a week with pneumonia, but is today at his post again ready to aid Prof. Hood in directing the 140 students reporting daily in the Carpenter Shop.

A brief call this week from Mr. A. W. Rollins of Sedalia, Mo., revived pleasant recollections of his residence on College Hill as one of our neighbors. He serves as expert judge of swine at the State Fair this week.

Prof. Failyer served as expert witness in a liquor case last week, and this week has been called to Marion County to give expert testimony in a suit for damages on account of sewage contamination of a stream near Peabody.

Miss Carrie Morse of the Freedmen's Schools in Birmingham, Alabama, was an interested visitor at the College on Tuesday morning. She took especial pains to learn about the industrial departments as a matter of direct use in organizing such work in the South.

A Farmers' Institute at the College about the middle of next month is something to be looked for by all interested. Full announcement will be made next week, but everybody is invited now to begin to get ready to come and see the College and the Experiment Station in working order.

Prof. Kellerman gave the first lecture of the term yesterday, presenting a view of the nervous system as pervading every minute part of the human body, and furnishing our responsive energy when affected by the outside world. The lecture was filled with interesting facts in physiology bearing upon human intelligence, and closed with an earnest plea for responsibility as related to all knowledge of our needs and our abilities.

The total enrollment of students at the end of this first week of the term is 398, of whom five are post-graduates, twenty-six rank as fourth-years, sixty-three as third-years, and over ninety are in second-year studies. A year ago today the enrollment was 323, with two divisions of the special preparatory classes, where there is now but one of about thirty-five members. It is evident that the strength of the State is better represented here than ever before.

President Fairchild and Professor Shelton called upon Secretary Rusk of the Department of Agriculture during his visit at Topeka on Thursday, and urged that, if possible, he give the College a call while in the State. The Secretary expressed great interest in the institution, but felt that his necessarily brief visit to the State must be given

wholly to the sugar mills to which the Department has devoted a large appropriation. We are sorry that our four hundred students cannot have the pleasure of greeting him this time.

GRADUATES AND FORMER STUDENTS.

H. S. Willard, '89, is teaching at Keats, Riley County.

J. S. Gould, Third-year in 1887-8, will teach this winter near Randolph.

Florence Brous, '84, is selected as substitute teacher in the Manhattan schools.

Wm. McIlwain, Second-year in 1884-5, teaches at Winkler's Mills this winter.

H. W. Jones, '88, left a week ago for Americus to begin his work as Principal of City Schools.

Emma E. Stewart Baemer, student in 1882, died in Lamar, Mo., September 5th, of malignant diphtheria.

E. M. Fairchild returned last week to Oberlin, Ohio, where he will complete his classical course this year.

C. G. Clark, '88, went to Topeka last week to enter upon a course of study in languages at Washburn College.

The *Colorado Farmer*, of which D. W. Working, '88, is editor, appeared last week in a new dress and new shape.

P. H. Fairchild, '86, left last week for New York city where he will finish his medical course at Bellevue Hospital College.

Susan Nichols, '89, is continuing her study of music under Prof. Brown, and taking post-graduate study in botany and sewing.

A. A. Mills, '89, while pursuing post-graduate studies, assists Prof. Lantz in direction of surveying practice, and teaches a class in arithmetic.

C. E. Mails, student in 1877, now General Secretary Y. M. C. A. at Arkansas City, was married September 10th to Miss Ida V. Mark of Oswego.

J. F. Carnahan, Second-year in 1888-9, was married August 31st to Miss Clara Pittman, and left the next week for Spokane Falls, Washington.

B. Buchli, '84, has ceased to be Postmaster at Paxico. The *Courier* says: "Mr. Buchli has been an exemplary officer, and no one can complain of him or his actions."

Of H. A. Platt, '86, we find the following in a Wichita County paper: "County Clerk Platt has moved out to his farm to the better attend to his fall seeding and such like."

Inez Bishop, student in 1881-2, writes from Glasco, Kan., enquiring about old friends. She adds: "The college is very dear to me. The happiest days of my life were spent there."

The following students of former years, but absent from classes for periods varying from a term to four years, are enrolled again this term: A. F. Cranston and Nellie P. Little, Fourth-years; H. W. Avery, Grace M. Clark, T. C. Davis, May F. Harman, Ella Harrison, G. V. Johnson, Louie Reed, E. W. Reed, Agnes Romick, S. VanBlarcom, F. A. Waugh, Fannie Waugh, F. E. Way, Third-years; S. N. Chaffee, Martha A. Cottrell, Alice B. Crooks, M. L. Graves, F. Ginter, R. G. Ingraham, H. C. Leffingwell, Bertha McNair, May Secrest, M. Alice Vail, S. A. Waters, S. I. Wilkin, Second-years; Alice E. Allingham, Laura Barr, B. Bateman, E. H. Edgerton, Alice Hood, T. E. Lyon, Anna McConnell, L. Hattie McConnell, Tempie C. McKee, Hattie A. Paddleford, A. F. Spohr, Minnie Spohr, Clara B. Whitelock, First-years.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

COLLEGE SOCIETIES.

SOCIETY HALL, Sept. 13th.
The Ionian Society was called to order at half past one o'clock by Vice-President Tunnell. Singing. Prayer. Roll-call. Solo, Anna McConnell, accompanied by Hattie McConnell. *Oracle*, Mamie Houghton. Officers were elected as follows: President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Report of Critic, Julia Pearce. Assignment of duty. Reading of minutes. Roll-call with quotations. Address by Miss Tunnell. Adjourned. A. V.

SOCIETY HALL, September 14th.
The Webster Society was called to order by Secretary Martin at eight o'clock. J. Davis was appointed chairman pro tem. A large number of the old members answered to the roll-call. W. H. Olin led in prayer. Debate on question, "Resolved, That the previous character of a convicted criminal should modify his punishment," was argued on the affirmative by G. E. Stoker and H. Darnell; on the negative by C. J. Dobbs and P. C. Milner. The Society decided by vote in favor of the affirmative. The *Reporter* was presented by H. N. Whitford. After recess, the following officers for the ensuing term were elected: President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors, G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. C. J. D.

SOCIETY HALL, September 14th.
The Hamilton Society was called to order by President Borton. Roll-call was responded to by about 25 members whose familiar faces revealed the fact that, with them, a goodly portion of the college year of 1889-90 was to be devoted to earnest, diligent society work. A. O. Wright led in devotion, after which the usual term election was held, in which the following officers were chosen: President, G. Vanzile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, C. W. Pape. The following Society Directors were chosen for the ensuing year: Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. After ten minutes' recess, the Society passed to the order of propositions for membership, and the following gentlemen offered their names: Ivan Parker, Merritt L. Graves, P. Leland, Frank Buch, A. C. Newburger, Chas. H. Manley, and Jno. R. Riddle. Messrs. Waugh and Gilstrap spoke encouraging words to both old and new students, after which the Society adjourned. F. A. C.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$14 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Nickerson has just completed a \$10,000 school house at the north end of the town.

The enrollment at the State Normal School at Emporia is 100 larger than at the opening last year.

The Kansas Normal College at Fort Scott opened Tuesday, August 3rd, with over 700 students.

The Rev. Dr. F. M. Spencer, late of Ohio, has been inducted as President of Cooper Memorial College at Sterling.

The State institution for the education of the deaf and dumb at Olathe, opened on September 12th, with an enrollment of 240 pupils, about thirty of whom enter for the first time.

The Dickinson County High school at Chapman opens its first term with seventy-five students, and promises abundant success. Being the first school of the kind in Kansas, its course will be watched with much interest all over the State.

Our thanks to Superintendent Cooper of Leavenworth for a copy of the "Courses of Study in Leavenworth High School." The school teaches five complete courses, viz: Latin English, Latin Scientific, English Scientific, Classical, and Commercial.

Bethany College, Lindsborg, is being renovated from top to bottom. All the rooms are repaired where necessary, and walls kalsomined. The roof and all soiled woodwork on the inside is being painted. The steam-heating pipes from boiler-room to building are being boxed and packed with mineral wool to save fuel.—*Lindsborg News*.

The Board of Regents of the State University have not yet selected a Chancellor, but have made a temporary arrangement by which Prof. F. H. Snow, the senior Professor of the Faculty, will act as President of the Faculty, and Regent Spangler will attend to the financial affairs. It is probable that this arrangement will be continued throughout the year.

The contracts for the erection of the building of the State Industrial School for young women at Beloit were let August 23rd, and work was commenced last week. The building is to be constructed of Beloit eight-inch stone. It is to be 64x100 feet in size, three stories, with full basement, and will be placed near the southeast corner of the land donated, at the head of Hersey avenue, fronting south.

Prof. W. H. Meserve of Massachusetts, lately appointed Superintendent of the Haskell Indian Institute at Lawrence, Kan., has been designated by Secretary Noble as disbursing agent of the Indian Department in order to disburse funds at the Haskell Institute. This indicates that he is recognized as the Superintendent of the Institute, although his appointment has been held up temporarily at the solicitation of Senators Ingalls and Plumb. The power of appointment of Superintendent is vested in the Commissioner of Indian Affairs, but only the Secretary of the Interior can designate a disbursing officer of his department.

The Faculty of the State University has been increased by the addition of four new members. Prof. Max Winkler, the new assistant to Prof. Caruth and Arthur Canfield, is a native of Germany, but received his education in Harvard College. Miss Caroline C. Welch, the new assistant in English, is a Vassar graduate, having received her degree of A. B. Prof. W. C. Stevens, the Professor in Natural History, entered the University about 1880, and graduated from the National History Department in 1885. After graduation, he went to Emporia, and has held the position of Professor of Natural Science in the high school of that city until his election as assistant in the University last spring. Prof. F. W. Blackmar, the new Professor of History and Sociology, is a native of Pennsylvania, and graduated from the Northwestern Normal School in 1874. He then went to California and taught a few years in the Public Schools of that State. He then entered the University of the Pacific, graduating with the class of '81. He taught in the San Jose High School, and was then called back to the University of the Pacific to fill the chair of mathematics. In 1886, he pursued a post-graduate course in Johns Hopkins, and during the year 1887-8, he was an Instructor in History at that Institution.

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shell-ing, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' hudding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$3,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frier, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory, with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$500.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms, with six machines, models, patterns, and cases; worth \$550.

Music Rooms, with four pianos, four organs, and other instruments; valued at \$1,500.

A **Library,** carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory, containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$300.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

A Sumner County farmer has paid off a \$3,500 mortgage with the proceeds of his wheat crop, and has some money left.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found in the Annual Catalogue:—

FIRST YEAR.

Fall Term: Arithmetic. English Analysis. Geometrical Drawing. Industrial.

Winter Term: Book-keeping. English Structure. United States History. Free-hand Drawing three times a week. Industrial.

Spring Term: Algebra. English Composition. Botany. Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed. Elementary Chemistry. Horticulture. Industrial.

Winter Term: Geometry. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking).

Spring Term: Geometry completed, Projection Drawing. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying. Anatomy and Physiology. General History. Industrial (Farm and Garden).

Winter Term: Mechanics. Agricultural Chemistry. Rhetoric. Industrial.

Spring Term: Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week. Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.

Winter Term: Logic, Deductive and Inductive. Zoology and Veterinary Science. Structural Botany. Industrial.

Spring Term: Geology. United States Constitution. Political Economy. Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSSTRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices. —"75".

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.
MEN'S W. L. DOUGLAS CALF SHOE, \$3.00.
We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. **LESLIE H. SMITH'S** RAZOR STORE.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth year classes. Once a week all the classes meet, in their class rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

ROTHAMSTED EXPERIMENTS.

EVERY reader of agricultural literature is familiar with the fact that Sir John Bennet Lawes of Rothamsted, England, has for many years maintained a private experiment station in agriculture; yet few realize the extent of his devotion to the matter, or the extensive results reached. In a recent publication of memoranda, an account is given of the origin of the station, the work undertaken, and the published results, from which a few points are gathered.

Sir John Lawes is himself the founder of the station, and its maintenance is provided for by setting apart in a deed of trust a certain portion of land, with one hundred thousand pounds at interest as a permanent source of income for the station. This fund is equal to the total endowment of the Kansas State Agricultural College, and sustains a corps of investigators nearly as large as our College Faculty.

The experiments were begun upon a moderate scale in 1837, and soon grew in extent and interest till they became the life-work of their originator. In 1853, Dr. J. H. Gilbert became associated with the work as chemist, and so for nearly fifty years the names of Lawes and Gilbert have been at the head of experimenters in agriculture.

The experimental farm now embraces more than 250 acres, all of which is under special cultivation, in special crops, for special inquiry, under special direction of experienced men. Feeding experiments are also in progress constantly, with most minute scrutiny of results in every direction. The process of making ensilage has also been studied for several years, though it has not as yet been fed experimentally, i. e., with data of results. In all these years there has been growing an immense museum of results, and more than 40,000 bottles hold the samples of all sorts now preserved.

Of data and conclusions only the smaller proportion has been published as yet. Still, these make a small library of seventy-nine articles upon experiments in tillage and vegetation, and thirty upon experiments with animals, sewage, and ensilage. Most of these are found in the special periodicals upon such subjects, as the *Journal of the Royal Agricultural Society*, *Journal of the Chemical Society*, *Philosophical Transactions*, *Agricultural Students' Gazette*, etc. A full list is published in the statement recently issued.

These fifty years of work have thus laid a firm foundation for continued investigation, and the monument insured to Sir John Bennet Lawes in the future of his experimental station is greater than imagination can picture. Its best feature is that no popular whim can divert from a continuous line of work its machinery or means of support. Why may not a similar foundation come from private enterprise in this great western world? What wealthy ranchman will build his fame upon his own acres by such an undertaking?—*President Fairchild.*

SANITARY ENGINEERING.

AMONG the endless sub-divisions of that very comprehensive profession of engineering, the position of the sanitary engineer is one commanding more and more attention as our country begins to have more really large cities. So great is the lack of knowledge among the great mass of people as to the aims and methods of the sanitary engineer, and of what he really accomplishes, that the recent agitation of the work in certain papers devoted to the subject seems a matter of necessity for the public education. The sanitary engineering that the average inhabitant obtains in a lifetime is probably equal in amount and importance to the hydraulic engineering he has become famil-

iar with, which is usually limited to a well-sweep or a cistern-pump.

That the traditional methods of dealing with sanitary questions about the house, the farm, or the village are by no means the best, is a conclusion soon reached after a ver

The time has not far passed when the services of a hydraulic engineer and his systems of water-works were things not thought of as belonging to the desires of a city; but now each village feels incomplete until it has its system of water-works. It seems very possible that, as the knowledge becomes more general as to what is actually accomplished by better methods of sewage disposal, it will be quite as necessary for the small town to have its perfect sewerage system as it is now to have its water-works. It is certain that where a modern town is laid out and built by a far-seeing corporation, the subject is one which receives early attention. If length of days are worth purchasing, it would seem that a sanitary system should be first to be considered.

The following arrangement of figures, although old, taken from B. Latham's *Sanitary Engineer* (English edition of 1878), states the case in a novel manner from a side seldom thought of. A city adopted in 1855 a system of sewerage, the total cost of which to the end of 1875 was \$1,295,498. The average mortality for the eight years preceding 1855 was 24.03 per thousand population. The average mortality during the succeeding twenty years was reduced to 19.56 per thousand, although the population had increased during the twenty years by 223 per cent. The mean population for the twenty years was 43,912.

By taking the saving of life each year,—4.47 persons per thousand,—and multiplying by the number of thousands of population in a year,—which averaged during the twenty years 43,912,—we find the average saving of life during a year of the twenty-year period to be 196.26 persons. For the twenty years, this would amount to 3,926 persons saved during this period. Deducting infants and the infirm from old age, there were still 2121 persons in full vigor of life who were saved. For every life saved a fair estimate would show twenty-five persons who escaped sickness, and that four dollars per case would represent loss of time, doctor's bills, physic, etc.

The labor of each man to the community could be put at the nominal sum of \$100 per year, and we would be ready to figure the money saving due to the sewerage system:—

3,926 funerals, etc., at \$20	\$ 79,520
3,926 x 25 = 98,150 cases of sickness prevented at \$4.00	392,600
2,121 men, value of labor at \$100 per year for 10 years	2,121,000
Total	\$2,593,120

In this case, although over one million had been spent for a successful sewerage system, still the saving in the short space of twenty years had exceeded the cost by over 95 per cent.—*Prof. Hood.*

KANSAS PRINTERS' SPECIMEN EXCHANGE.

This will notify printers who have promised to contribute to the "Kansas Printers' Specimen Exchange" that specimens should be forwarded by mail or express, prepaid, at the earliest possible date. All specimens should be received by October 1st, but in some cases it will be impossible to finish the work by that time, so a few days' grace will be allowed. All who receive this notice will confer a favor by writing at once to the undersigned, stating when specimens will be ready.

J. S. C. THOMPSON.

MANHATTAN, KAN., SEPT. 28th, 1889.

A. P. Forsyth has a fine farm and about two miles of the best trimmed hedge in the county. Although an ex-Congressman, he knows how to run a farm.—*Independence Tribune.*

QUESTIONS IN CATTLE FEEDING.

The following is taken from the Independence (Kan.) Tribune:—

Messrs. Shoemaker & Booth asked certain questions of the Experiment Station at the Agricultural College, concerning much disputed points among feeders, and have received the following reply. It will be noted that where so many can positively answer the questions, this distinguished and practical experimenter says, "I don't know!"

MANHATTAN, KANSAS, Sept. 7th, 1889.

Messrs. Shoemaker & Booth, Independence, Kansas.

Gentlemen—Yours of August 29th is duly received. Your questions are difficult ones to answer, because the answers to the questions depend, in many cases, upon outside matters. Your question whether cattle do better to feed upon corn alone, or corn and ample "roughness," depends perhaps as much upon the animal himself as upon the nature of the food. In other words, some animals do well upon corn alone; others, again, would do much better upon corn with abundant hay.

The question of the relative values of old and new corn, I can answer in a very short phrase: *I don't know*; and I may add to this, that I don't think any one knows. As to the difference between the values of white and yellow corn for fattening, so far as mere color is concerned, it has little to do with the value of corn. Chemists tell us that the only difference between white and yellow corn is a very small amount of coloring matter.

Your third question, as to the relative values of corn in the ear, shelled corn, or crushed corn, may be answered in a word. The answer is wholly one of cost of shelling, grinding, or crushing. If I had plenty of hogs to follow cattle, I should prefer to feed corn in the ear, according to the familiar plan. If I had plenty of power, and it was easy and comparatively costless to shell or grind or crush, then I should shell, grind, or crush as the case might be. I am satisfied of this, however, that with beef at present prices, and corn at less than twenty cents per bushel, we cannot afford to pay five cents a bushel for shelling and grinding. Yours truly,

E. M. SHELTON.

BADLY DRAINED LANDS.

All of our cultivated plants thrive best on soils where the water quickly passes away. Even the cabbage, the cauliflower, and the celery, which are especially grateful for an abundance of water, show their resentment to stagnant water by stunted growth and general unthriftiness. In well-drained lands, the roots of plants are able to penetrate to a much greater depth, and thus the capacity of the land is increased, while its superficial area remains the same. If some of our readers have an ambition for more acres, let them ask themselves the question, if the land they now have is bearing to its full capacity, to what extent may the present area be increased in productiveness by judicious and economical drainage? The question of drainage takes precedence of that of manure, important as that is; takes precedence of methods of culture, of improved implements, in fact, of all cultural operations. From the fact that roots can penetrate to a greater depth in drained lands, vegetation on such soils can sustain itself far better even in times of drought; the available soil of undrained land is shallow, and when this is dried out the plants have no resource, for they cannot penetrate the unwatered subsoil.—*Vick's Magazine*.

THESE UNITED STATES.

The United States of America, which separated from England in 1776, and elected their first President in 1780, now consists of 42 States, 6 Territories, and 1 Federal District. The total area of the Union, including Alaska, is about 3,605,000 square miles. As for the population, that, during the century, has made a truly fabulous progress.

While Great Britain's population has, in fifty years, increased by 10 millions, France's by 5 millions, Germany's by 16 millions, the population of the United States has increased 37 millions. It has been calculated that, since 1790, the population of North America has been doubling about every 26 years. At present, the population of the American Union must certainly exceed 62 million inhabitants. Now, in 1790 the population did not reach 4 millions. In one century, then, the population has varied in the proportion of 1 to 15.5.

If this ascending advance continues, and there is every evidence that it will, the United States in 50 years will count more than 200 million inhabitants, and in 70 years will be as populous as Europe.

Four-fifths of the present population consists of Americans of English origin; the other fifth con-

sists chiefly of Germans, more than three millions of whom have arrived within the forty years only comprised between 1840 and 1880. Countries other than England and Germany have furnished but little to the emigration, so the French, Italians, Spanish, etc., who have taken up their abode in the United States are swallowed up in the immense mass of Anglo-Germans. In 1880, the cities contained a quarter of the total population of the United States.

Apr6pos of immigrants, let us recall the fact that 13,500,000 have arrived in the United States within a century. The annual number of them varies much with the year. Thus, in 1882, 788,000 were received; while in 1886 the number was but 334,000.—*Scientific American*.

KNOWLEDGE FOR PROFIT.

Education is one of the means to obtaining greatness. It is impossible for a man to know too much. As it pays a man to grind his ax before he goes out to work, so it pays him to train his mind by education before he starts out in life. A man may not be strong physically, but if his mind is well developed and trained, he will be a success. It was so in the case of Watt. He was not strong physically, but he was one of the greatest religious poets that ever lived. Knowledge is power. It gives a man strength. A man could very well do without education twenty-five years ago, but now it is fast becoming a necessity, and I believe in ten years from now uneducated people in all stations of life will be left behind. Knowledge is power. This is proven on every page of history. It is seen in the rise and fall of nations. Why was it that the Russian army gained such a brilliant victory over the French under such difficulties? It was simply the superiority of mind over matter.—*The American*.

DIVERSIFIED FARMING.

This has been a good year for Kansas farmers; crops, as a rule, have been good, and prices promise to rule high. This success, says the *Rural New Yorker*, should not make farmers reckless. There is danger that it may do so. After a good season, it always pays to be conservative. This is on the principle that saving is just as important as earning. The excellent wheat crop that has just been harvested has turned the minds of many Kansas farmers. They want to put in more wheat than ever next year, and neglect other crops and farm interests. This idea is wrong. Keep out of it. Diversified farming is surest in the end. And this fact applies with equal truth to farmers in other sections of the country. Whenever prices range high for a certain product, there is, among a certain class of farmers, a rush to raise an extra amount of that product the next year. The consequence always is that the market is glutted, prices are lowered, and good prices are only obtained for the products that the farmer has neglected. Is not this true?

THE CENSUS AND AGRICULTURE.

The Superintendent of the Census calls attention to the importance of having the returns in relation to farm products and live-stock full and correct. "The enumerator, in the house-to-house visits he will make during June, 1890, is constantly met with the fact that farmers keep no books; hence returns are not infrequently guess-work. The census year began June 1st last, and ends May 31st, 1890. If farmers throughout the country would note this fact, and keep account of the products of their farms during the census year, it would be of material aid in securing reliable returns."

W. H. asks if it would pay a young man, twenty years old, possessing a fair common school education and no money, to attend an agricultural college if he intends to farm for life. That depends. If he really loves the business, and has the grit to struggle through college, as he will doubtless have to struggle, having no means, the discipline and exertion alone would be of inestimable value to him in after years. In addition, the knowledge stored up and business faculties developed would be likely to pay him abundantly. The young man possessing but a meager amount of perseverance and but little self-denial and determination, might perhaps consider he had not pursued the right course. But a thorough education pays in any business.—*Farm and Home*.

One hundred and fifty-two pounds of Kansas silk were recently sent from Peabody to Philadelphia.

KANSAS THRIFT.

Osage City is to have five miles of water mains and fifty-five hydrants.

Texas cattlemen will feed 15,000 head of cattle in Reno County this fall.

The cotton crop of Chautauqua County this year is the largest and best ever raised in the State.

John Bright University at Wichita, a Quaker institution, will soon become heir to \$150,000.

Miami County farmers who have tried it claim that raising tame grasses pay a handsome profit.

A Mitchell County man claims to have made \$2,000 out of watermelons and vegetables this year.

The canning factory at Council Grove is canning from two to three thousand cans of tomatoes a day.

A farmer living near Parsons took a load of clover seed to that place recently, and received \$180 for it.

A Sumner County farmer paid off a \$3,500 mortgage the other day with the proceeds of this year's wheat crop, and had some money left.

Peaches are so plentiful in Harper County that hundreds of bushels are going to waste. The choicest only bring twenty-five cents per bushel.

Kansas breeders took all the first premiums on cattle, holsteins, jerseys, red polls, and short horns, at the Iowa State Fair, at Des Moines, last week.

It seems to be the opinion of all cattle men, packers, commission men, ranchers and feeders, that cattle will be a better price next spring.—*Burr Oak Herald*.

The new depot at Lawrence, built at a cost of \$28,000, will be ready for occupancy about September 15th. This building is one of the finest along the Union Pacific Railroad.

A man who came to Rawlins County in 1880 with only \$3 and a suit of clothes, now has 480 acres of land, six horses, and thirty town lots, but he still has only one suit of clothes.

"Kansas," says the *New York World*, "is the poor man's home. She is a little over twenty-five years old, and more people have risen from poverty to affluence in that State than in any other State in the Union."

Counting corn, wheat, oats, sorghum, fruits and vegetables, stock, grass, dairy and poultry products, and the rest, it is not too much to say that the selling value of the farm output of Kansas this year will approximate \$200,000,000.

Geo. Harran, living near Gaylord, has raised two crops of corn on the same ground this year. The first planting was early; the second planting was later, and between the rows of the first. The first crop is cut and in shock, and the second is just nicely in tassel. Either planting will make a good average crop.

Kansas this year produced nearly one-tenth of all the wheat raised in the United States. Our corn will be considerably more than one-tenth of the total for the United States; oats a little less than one-tenth. Altogether, the Sunflower State will produce in these three staples just about one-tenth of what the whole country will yield.

Peaches are more plentiful than ever, and the thrifty housewife is buying plenty of them for canning purposes at fifty cents a bushel and less. Grapes are from one to two cents a pound. Early apples are to be had very cheaply, but winter fruit will command better prices owing to the fact that the crop is short in nearly all the eastern fruit-growing States.—*Washington Republican*.

Kansas produced only 13,000 bushels of salt in 1880. This year she takes her place among the large producers. And it is rock salt that is the main source of supply, though other sources are to be utilized soon. The rock salt was struck first at Ellsworth, at a depth of 730 feet, in August, 1887; at Hutchinson, north of the Arkansas river, a little later, at a depth of 420 feet; at Kingman the same year at 765 feet; December 2nd, at Lyons, at 785 feet; the same month at Anthony at 925 feet. In 1888, salt finds were made at Nickerson, Great Bend, and Sterling. All the towns named are either making salt or erecting salt "blocks." It is believed here that all salt used for ordinary purposes west of the Mississippi river will be supplied by Kansas. All in all, the material prospects of the State are excellent just now.—*New York Times*.

CALENDAR.

1889-90.

Fall Term—September 12th to December 20th.

Winter Term—January 7th to March 28th.

Spring Term—March 31st to June 11th.

June 11th, Commencement.

1890-91.

Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Steam has kept the buildings comfortable for several days this week, though no hard frost has appeared.

The classes in Horticulture were met while Prof. Popenoe was at the State Fair last week by Assistant Mason.

During the absence of Prof. Failyer this week, his large classes in Chemistry were carried on by Assistant Breese.

Prof. White is rejoicing in the possession of a new safety bicycle, which he says is a tractable steed that doesn't eat.

Prof. Shelton takes part in a farmers' gathering at Hutchinson this week, and may visit the sugar-works at Liberal before his return on Monday.

The new captains for the term are donning the shoulder straps in true military pride; and they have a right to be proud of their six good companies.

The experimental plats of wheat are again in place, with permanent stakes of iron piping to mark their limits. It is the plan to continue these experiments indefinitely.

The universal verdict is that 400 students never set themselves at work in better order or with less of friction than ours have this year. They are earnest seekers after knowledge.

Secretary Graham has been visiting his family at Menoken for a day or two, meanwhile sharing in the Christian Convention at Topeka. Mrs. Graham and the children will return with him.

Mr. and Mrs. Olin of New York were visiting the College yesterday in the company of their relatives, Mrs. Burgoyne and her daughter. Our Professor Olin was glad to be pilot for the sake of the name.

Assistant Chemist Willard is kept busy these days from early dawn till candle lighting in the analysis of the nearly 200 varieties of sorghum grown on the College grounds this year. If the sugar is there, he is sure to find it.

Prof. B. J. Galloway, of the Department of Agriculture at Washington, spent a day at the College this week. His special field of study is diseases of plants, and his visit here is of peculiar interest to Prof. Kellerman and Assistant Swingle, with whom he has had extensive correspondence. He was the guest of Pres. Fairchild, whose son David is at work under his direction in Washington.

Nine members of the Third-year class broke the ice for rhetorical exercises yesterday in chapel, with well-selected and well-delivered declamations. Prof. White announced that on account of this year's class being nearly twice as large as last year's, there will be seven divisions in place of four. A large number of visitors, among them several former students, favored the exercises with their presence.

The sorghum in the field west of the college building has gone into the silo this week. With a patent cane-cutter in the field, laying two rows in bundles as fast as a man can walk, energetic students to load, and a steam cutter to slice it into the silo, a score of tons can be canned for winter use in short order. Sorghum, by the way, is an enormous crop this year. A stalk nineteen feet long graces the farm office at the barn.

After deliberation and consultation with various interested farmers and others, the Faculty have reluctantly given up the proposed institute and exhibition hinted at last week. The time at command was so short, and so filled, too, with a host of cares for Professors and students, that it seemed impossible to secure either the attractions or the attendance desirable in such an undertaking. In some future year the plan may be perfected in time for a rousing round-up of the experimental

season. The 250 varieties of potatoes and 80 of tomatoes, 56 kinds of corn and over 200 of sorghum, would make a show of themselves.

Prof. Failyer returned on Wednesday morning from his attendance upon court in Marion County. The case upon which he was called as an expert witness is a suit against the School Board of Peabody for damages supposed to arise from the emptying of the school-house sewer into a creek near. Prof. Failyer analyzed water from both above and below the sewer, and gave the results. He was subpoenaed in behalf of the School Board.

GRADUATES AND FORMER STUDENTS.

L. D. Buenting, Second-year in 1885-6, is studying law in Ann Arbor, Mich.

P. Creager, Third-year in 1886-7, is teaching at Jamestown, in Cloud County.

Florence Spradling, Second-year in 1888-9, teaches near Greenleaf this year.

Mattie I. Farley, '89, teaches this year in the schools of Fredonia, Wilson County.

H. C. Rushmore, '79, is mentioned as one of the leading business men of Fort Payne, Alabama, where he has made his home.

L. H. Dixon, '88, writes from Trinidad, Colo., that he is prospering, and is still in the employ of Bulger & Rapp, architects.

D. G. Robertson, '87, has devised a receiving book for his office, Clerk of the District Court in Osborne County, which is highly commended.

D. E. Bundy, '89, has been invited to take a place as instructor in Spencer Academy, a Mission School among the Choctaw Indians, at Nelson, Ind. Ter.

Among familiar faces of former students at chapel yesterday were noticed these: Belle Cogswell, Emma C. Deibler, Katie Spilman, Emma Knipe, and Maggie Purcell.

J. U. Higinbotham, '86, was a caller this week with a friend from Nebraska, who could not help contrasting this College with the Agricultural Department of Nebraska University.

A list of the Riley County teachers shows forty-eight who have been students at this College. Fifteen of these are graduates from the full course. It speaks well for the schools and well for the students.

STANDING COMMITTEES.

The Standing Committees of the Faculty for the current year were announced last Monday, as follows:—

Farmers' Institutes—Professors Failyer, Shelton, Popenoe, Walters, and Kellerman.

Post-Graduate Courses—Professors Popenoe, Shelton, Failyer, Kellerman, and Walters.

Museums—Professors Kellerman, Failyer, Popenoe, Graham, and Hood.

Library—Professors Lantz, Shelton, Failyer, Popenoe, and Olin.

Examinations and Grades—Professors Graham, Lantz, Olin, Morrison, and White.

Public Exercises—Professors Olin, Shelton, Brown, Morrison, and White.

Social and Literary Entertainments—Mrs. Kedzie, Mrs. Winchip, Professors Brown, Morrison, and White.

Buildings—Professors Hood, Failyer, Popenoe, Kellerman, and Walters.

Catalogue, Blanks, etc.—Professors White, Lantz, Graham, Olin, and Thompson.

THE ENROLLMENT.

The enrollment this year is so far the largest in the history of the College. The following figures, showing the number present at the end of the second week in several years past, may be interesting for comparisons in various ways:—

	1886.	1887.	1888.	1889.
Fourth-years	24	27	25	26
Third-years	41	45	38	66
Second-years	99	71	93	88
First-years, A	160	174	140	175
First-years, B	42	54	37	42
Total	366	371	333	397
Males	213	249	198	254
Females	123	122	135	143

Mrs. Kedzie, one of the teachers in the Kansas State Agricultural College, read a paper on food at a recent session of the American Science Association in Toronto, Canada, which was not only highly complimented by those who subsequently discussed it, but by all the local papers.—*Atchison Champion*. Mrs. Kedzie's paper is to be published in the proceedings of the Association.

COLLEGE SOCIETIES.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Vanzile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, C. W. Pape. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, Sept. 20th.

The Alpha Beta Society was called to order by Vice-President Emma Secrest. Music by the Society. Mr. Victor Armour led in devotion. Roll-call. The officers elected one week ago were installed. President Secrest delivered an able inaugural address. F. E. Way, W. W. Conners, J. A. Zimmerman, and Miss Emma Hopkins were initiated. Declamation, Miss Sarah Cottrell. Select reading, Miss Jennie Green. Debate, "Resolved, That the United States should abolish the military and naval academies at West Point and Annapolis." Argued on the affirmative by B. H. Pound and W. E. Lea; on the negative by R. D. Whaley and R. S. Reed. The Judges decided in favor of the negative. The *Gleaner* was presented by Miss Christine Corlett. Recess. Instrumental music, Miss Corlett. Extemporaneous speaking. Miscellaneous business. The names of May Harman, Bertha McNair, R. J. Orr, and J. F. Odle were proposed for membership. Assignment of duties. Report of Critic. Reading of minutes. Music, Miss Nellie McDonald, Miss Delpha Hoop, and Miss Christine Corlett. Adjournment. G. L. C.

SOCIETY HALL, September 21st.

The first order of business that occupied the attention of the Hamilton Society was the installation of officers. Ex-President Borton was called on for a valedictory address. He thanked the Society for the attention paid him, and also for the way in which each member had performed his duty. After President Van Zile had taken the chair, an inaugural address was called for. In a few well-chosen words, the President outlined the history of the Society, showing what it had been, and what it was at the present. After stating some of the objects which the Society should strive to attain, Mr. Van Zile resumed the chair. Percy Leland, C. S. Manly, I. D. Parker, A. C. Newberger, M. L. Graves, and Mr. Beach were duly elected members of the Society. L. S. Strickler recited the speech of "Regulus before the Carthaginians." An essay entitled "Luck" was presented by A. K. Midgley. Mr. Gilstrap entertained the Society by rendering Napoleon's Farewell Address. The debate, question, "Will the present organization of farmers relieve them of oppression?" was argued on the affirmative by A. F. Cranston and A. E. Martin, and on the negative by B. Skinner and R. J. Brock. The Judges, Messrs. Yeoman, Balderston, and Criner, decided unanimously in favor of the negative. After debate, recess of ten minutes was taken. Messrs. Balderston, Anderson, and Waugh played the Myosotis Waltz. Under the order of new business, the time of meeting was changed from 8 o'clock P. M. to 7:30 o'clock P. M. The musicians rendered another piece of music entitled "Elfin Waltz." Under extemporaneous speaking, F. A. Campbell and F. A. Waugh spoke of the music of the Society. Discussion on this subject was continued by several members of the Society. Adjourned. E. C. C.

SOCIETY HALL, September 18th.

The Ionian Society was called to order by Ex-President Tunnel. Society joined in singing, followed by devotion and roll-call. Under the order of installation of officers, the officers elected at the previous meeting were installed. Music, a solo, by Anna McConnell. Select reading by Myrtle Harrington. The *Oracle* was presented by Effie Gilstrap. The discussion was opened by Julia Pearce, after which other members took a spirited part. The Society then listened to instrumental music rendered by Misses Pearce, Waugh, and Hunter. The names of Eda Hederstrom, Kate Pierce, Lizzie Meyers, Phoebe Turner, and Millie Frost were presented to the Society for membership. The usual routine of business was disposed of. Assignment of duties. Reading of minutes. Report of Critic. Roll-call with quotations. Adjourned. S. E. H.

SOCIETY HALL, September 21st.

The Webster Society was called to order by Secretary, E. T. Martin. H. M. Whitford was appointed temporary chairman. After the usual roll-call, C. A. Campbell led in devotion. The inauguration of officers over, President Martin was called on for an address. He responded by acknowledging the responsibility he felt by having such trust given to him, by alluding to the past work of the Society, and by appealing to the members for their united efforts in future work. His remarks were well received. The question for debate was, "Resolved, That inventions do not benefit the condition of the laboring classes." Argued on the affirmative by J. W. Bridgman and B. H. Pugh; on the negative by C. A. Campbell and A. M. Wilkes. The question was decided in favor of the negative. Declamations—"Preservation of Character" by W. H. Edelblute, and "New England" by J. A. Davis. Music, "The Mocking Bird." Mr. Scott whistled the part of the bird and Messrs. Gist, Edgerton, and Pugh accompanied on organ and violin. The piece was excellent, and was heartily received. The names of E. M. S. Curtis, D. A. Webster, R. C. Hunter, Geo. K. Helder, E. F. Kistler, F. W. Ames, A. E. Campbell, and Wm. Towne were proposed as suitable persons desiring to become members. Discussions were given by A. S. Houghton about Cables; E. W. Curtis on Mines; and W. L. Swingle on Micro-organisms in the Air. There was a full attendance, especially of new students. All expressed themselves well satisfied. H. D.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

THE INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Chase Springs, Wallace County, is building a brick school-house.

The German Lutherans of Sylvan Grove are building a denominational school-house.

The Kansas Academy of Science will hold its annual meeting at Wichita, October 24th to 26th.

The Emporia School Board announces that it will prosecute parties who sell tobacco to minors under sixteen years of age.

The State Normal School at Emporia expects to enroll 1,000 pupils this year. It started in 1864 with nineteen scholars.

The Board of Education has purchased about \$75 worth of school supplies, such as maps, tellurian globe, electroscope, air pump, etc., of the National School Furniture Co.—*Osborne Journal*.

Mr. G. R. Wolf has about completed the plans and specifications for the new Presbyterian College, and it is now expected that work will begin at once in the construction of the edifice.—*Hays City Times*.

The attendance at the Osborne city schools on Monday morning reached 323. This is as large an attendance as at the opening of the second month last year, and it will reach a considerably higher number by January.

Reno County will spend a hundred and ten thousand dollars on schools this year. Only four counties spend more. They are Shawnee, Sedgwick, Sumner, and Cowley. The total in the State is nearly three and three-quarters millions of dollars.—*Hutchinson Interior-Herald*.

People who say that Lawrence has not grown for ten years will be nonplussed by the fact that the number of pupils enrolled in the public schools has increased from 1,618 in 1879 to 2,371 in 1889. The high school shows the most remarkable condition of that of any in the State, containing 237 pupils.

There are 200 more children in attendance at the Emporia schools than there were last year. D. W. Morris, President of the Board of Education, says more room is absolutely necessary, and that the Board will have to rent a building somewhere until other and more permanent arrangements can be made.

Thanks to Edw. F. Taylor of Wyandotte County for a copy of the "Course of Study, Rules, Regulations, and Suggestions" of his County. It is a neat pamphlet, and full of good things for teachers, school officers, and parents. We regret that we have not space to quote more than the following: "Ordinarily the boys and girls in the district school should have plenty of exercise to keep them healthy and strong, but the attention of both parents and teachers is called to the matter of evening entertainments. The human body requires so much rest and sleep; and the teacher or pupil who spends too many evenings 'out late' must invariably suffer in school. Headaches, cross teachers, scoldings, and thrashings do not help any school to do honest work."

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$14 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs.

Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 30 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology. Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and mollusks in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frier, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory, with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$500.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms, with six machines, models, patterns, and cases; worth \$550.

Music Rooms, with four pianos, four organs, and other instruments; valued at \$1,500.

A Library, carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory, containing one hundred and fifty stands of arms (breach-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifles; also swords, uniforms, etc. Value, exclusive of arms, \$300.

KINDRED INSTITUTIONS.

"Smut in Wheat and Oats" is the title of Bulletin No. 28 from Purdue University, Indiana.

Michigan Agricultural College receives high commendations for its display at the Detroit Exposition this year.

Prof. Geo. H. Cook, Director of the Experiment Station of New Jersey, died recently at New Brunswick. He was in his 72nd year.

Bulletins Nos. 3, 4, 5, Vol. II, of the Ohio Experiment Station deal respectively with Silos, Ensilage, and Field Beets; Small Fruits and Picking Apples; Wheat Seeding, and a Test of Varieties of Wheat.

The Eighteenth Annual Report of the College of Agriculture and Mechanic Arts for New Hampshire shows that 275 students have been connected with the institution since its opening, 124 of whom have graduated. The attendance during the past year was fifty, nine of whom were in the graduating class. A summary of occupations of graduates shows 28 in agricultural pursuits.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope, but fuller explanations are found in the Annual Catalogue.

FIRST YEAR.

Fall Term: Arithmetic, English Analysis, Geometrical Drawing, Industrial.

Winter Term: Book-keeping, English Structure, United States History, Free-hand Drawing three times a week, Industrial.

Spring Term: Algebra, English Composition, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed, Elementary Chemistry, Horticulture, Industrial.

Winter Term: Geometry, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).

Spring Term: Geometry completed, Projection Drawing, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying, Anatomy and Physiology, General History, Industrial (Farm and Garden).

Winter Term: Mechanics, Agricultural Chemistry, Rhetoric, Industrial.

Spring Term: Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week, Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.

Winter Term: Logic, Deductive and Inductive, Zoology and Veterinary Science, Structural Botany, Industrial.

Spring Term: Geology, United States Constitution, Political Economy, Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices. —"75".

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.
MEN'S W. L. DOUGLAS CALF SHOES, \$3.00.
We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. **LESLIE H. SMITH'S SHOE STORE.**

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

THE HARRIER, OR MARSH HAWK.

THE Marsh Hawk (*Circus hudsonius*, Linn.) is widely distributed in North America. It is found wherever there are stretches of meadow or prairie, but is most abundant near low marshes. In Kansas, it is one of the most common of our hawks. At all seasons of the year, it may be observed sailing over the fields in search of food. It flies very near the ground, and beats back and forth over the meadows or cornfields, hunting them as closely as a well-trained setter dog would do. It is this habit which gives it its popular name of harrier.

The harrier is of medium size, and its upper parts, head, and breast, are of a pale blue color. Its under parts are white, and it has a conspicuous patch of white upon its upper tail coverts, or rump. This latter characteristic will enable anyone to distinguish it, when flying, from every other species of hawk.

It begins to build in April. The nest is placed upon the ground, and is composed of sticks, weeds, and grass loosely thrown together so as to form a small platform. Upon this the eggs, which are four to six in number, are laid. They are of a bluish white color, sometimes marked with dashes of purplish brown, more or less distinct.

The food habits of the Marsh Hawk are well known to observers. Everywhere, at the same season, its food is essentially the same. This, in the summer, consists largely of orthopterous insects and small quadrupeds; in the winter, of quadrupeds, with an occasional small bird. There can be no possible question of the general usefulness of this species to the farmer. The Department of Agriculture at Washington has reported upon the examination of the stomachs of forty-six of these birds. Of these, ten contained remains of birds, twenty-four, mice; nine, gophers or other mammals; three, reptiles; eight, insects; and one was empty. Very similar results were obtained in a series of examinations by Dr. Warren of West Chester, Pa. About twenty years ago, Prof. Aughey of Nebraska examined the contents of the stomachs of six of these hawks, and found in them 395 insects, of which 249 were locusts. Three of the six had also remains of reptiles, and one contained a young gopher. There was no trace of bird remains in any of them.

With these facts before us, no one can hesitate to decide that the Marsh Hawk ought to be protected. By referring to Section 1, Chapter 115, Session Laws of Kansas for 1883, we find the following:—

It shall be unlawful for any person or persons, at any time, except as hereinafter provided, to catch, kill, trap, shoot, or ensnare, or to pursue with such intent, any wild bird, except the wild goose, duck, hawk (excepting the harrier), crow, blue-jay, snipe, curlew, plover, piper, bittern, heron, crane, and woodpecker.

Now, the influences which affect legislation of this kind are past searching out. It is strange that the harrier should be excepted from the list, and yet not more strange than that the Legislature, which passes a law permitting the killing of hawks, and woodpeckers,—the latter certainly harmless,—should fail to include owls among the birds which may be destroyed. It will be observed that owls are protected by our law. This is proper and right; and the law protecting the harrier should be extended to several other species of hawks.

But it is one thing to pass a law and quite another to bring about its general observance. In this vicinity, fully half the hawks killed are harriers, and yet not a single prosecution under the law has ever taken place. To the ordinary hunter or farmer, a hawk is a hawk, and ought to be killed, and nothing that can be said to him will change his opinion. He plainly intimates to you that he prefers to remain in ignorance about the

good qualities of either hawks or owls, and that he has no respect whatever for the law which denies him the privilege of shooting them. It is to be hoped that farmers and others will learn to distinguish between the Marsh Hawk and other species, and hereafter protect them from wanton and unlawful destruction.—Prof. Lantz.

WHAT SHALL WE TEACH?

THE above is the heading of an article in a recent number of *Frank Leslie's Illustrated Newspaper*, from which I quote:—

Up to a recent period but little attention was paid to the course of studies in our public schools. Within the past few years, however, public attention has been directed to the subject, and recent changes in the curriculum, even of the lower departments, are of the most striking character.

We may expect more and greater changes in the near future. The air is vocal with earnest and prolonged discussion, by both parents and teachers, concerning the courses of study to be pursued at school and college. Is our curriculum susceptible of improvement? is a question engaging the thoughtful consideration of more teachers and school boards, today, than ever before.

In glancing over the curriculums of our public schools especially, we find that the physical, the æsthetic, and the moral sides of an education are very much slighted; we discover that more time and attention is given to what is termed mental discipline, than to all else combined.

The demand for more physical and æsthetic culture in the common schools is rapidly growing, and we are glad to know that the School Board of our own city has seen the "writing on the wall," and are now thoughtfully considering the question, Shall vocal music have a place in the curriculum of our public schools? That vocal music deserves a place in our educational system may be shown by the following and other reasons: It contributes to health by insisting upon physical training, happily combining vocal and gymnastic drill; it educates the senses and cultivates the æsthetic taste, the love for the beautiful and true in nature and art; it is a valuable mental discipline; it aids in securing good discipline in school, and assists in the moral training of the young.

Let us consider first its influence on the health of a child. At the very foundation of good singing lies correct respiration; it is, in fact, the chief corner stone of all voice culture. May I say here that outside the medical profession there are but few persons who properly appreciate the importance of thorough, active, and systematic respiration.

Teach a child to breathe correctly, so that it becomes a habit through life, and you have made him invulnerable to the attacks of very many of the diseases flesh is heir to.

Man may exist for days and weeks without water or food, but, deprived of oxygen, he can live but a few seconds; and as this life-giving element is received alone through the lungs, how important it is that our respiration be deep, systematic, and vigorous. This habit of correct breathing is of value not simply because it brings into the lungs a greater amount of air, quickening the circulation and purifying the blood, but because, by it, a greater number of the vital organs are brought into use than by any other action of which the human body is capable.

Free, unrestricted respiration in pure air aids digestion; and as good health, good nature, and almost every other good thing depends on good digestion, let us see to it that our children are not ignorant on this subject.

Voice culture has a work to do in quickening the sense of hearing, training the ear to accuracy of pitch and to an appreciation of musical sounds,

which no other agency can accomplish. Occasionally we hear this objection: "Some people have no ear for music, and the training which you suggest for general use in school will be valuable only to part of those who take it." There are some persons, we acknowledge, who hear with perfect distinctness, and yet are deaf to all variations in pitch; deaf to all musical modulations—who cannot distinguish between noise and tone; but for this class even there is hope, and for this class we would urge the study of music most strongly, because in most cases by careful training this deficiency may be remedied, as is proven by the experience of every observing teacher.

Is it right or generous to compel children to go through life deprived of a sense through which comes so much of purest enjoyment, simply for the lack of a little cultivation?

As a mental discipline, music is inferior to no other school exercise. Observe a class of children singing a new song at sight: if the mind is disturbed by any other thought, the pitch or rhythm or both, is lost, and failure results. Success requires the most careful attention, rapid and accurate thinking, and complete concentration of mind.

As an aid in securing good discipline by its refining influence, all teachers of experience will testify that music has often brought order and quiet out of chaos and confusion when both coaxing and scolding would have failed. In a school where music is a daily exercise, the rod will seldom be used, for good music awakens a spirit of good will, creates a love for the good, the true, and the beautiful, thus assisting in the moral training of all who are subject to its influence.

From the foregoing and many other reasons which might be given, may we not rightly conclude that vocal music has power to benefit every side of the child's nature? In the consideration of the various systems of preparatory education, we think that system the most nearly perfect which neglects no part of a many-sided development; and those studies which contribute most toward this end deserve to rank as the most important.—*Prof. Brown.*

MANAGEMENT OF FARMERS' CLUBS.

E. H. Collins in the *Ohio Farmer* has these good hints as to managing farmers' clubs:—

"The part taken by different persons, as shown by many instances, depends largely on the informality of the meeting, the wording of the programme and questions, etc. If parliamentary rules are adhered to, one can lock everything up so tight that the fire of inspiration will not kindle, and there are many who have words to say only when warmed up by animated talk of others. After such have once 'talked out in meeting' they are quite willing to do so again. Very much depends on the presiding officer. If he is clumsy, and not accustomed to teaching so as to keep a sort of skeleton programme in mind running a little ahead of the exercises, your meeting is dead, and the club soon ruined. He should, by appropriate questions or remarks, direct the discussion in as definite a line as possible, without marring or cutting any one's feelings; otherwise the talk will ramble and become uninteresting."

A WHEAT TRUST.

The farmers are starting a "trust" on wheat. They will not call it by that name, but a trust it will nevertheless be in effect. They have already sent forth the request that no farmer shall sell his wheat for less than one dollar per bushel. In a recent meeting at Topeka, Kansas, they issued a call for a convention of delegates from all the wheat-growing districts of the Mississippi Valley, to be held in St. Louis the last week of October. This is to "discuss measures for relief and to form a wheat-growers' association." It is certain that farmers have just as much right as any other interest to organize for the purpose of making consumers pay higher prices for their products. One of the practical difficulties will be that of satisfying men who cannot afford to withhold their grain from market. Some way of advancing money in such cases will have to be devised. After that, nothing but ac-

tual experiment will prove whether Great Britain and Europe will pay such prices as will net a dollar per bushel at his market to each of our farmers for his wheat. If the foreigners can obtain supplies elsewhere cheaper, our farmers will have to limit their production to the needs of home consumption.—*School and Home.*

THE AGE OF ELECTRICITY.

The century which is rapidly drawing to a close is appropriately called the age of steam; that which will soon be ushered in will be the age of electricity. In all probability people are now living who will ride from Savannah to New York between the rising and setting of the sun. Instead of many cars, there will probably be two or three cars to the train, and many trains. The heavy "moguls" that are now the pride of the railroad company will no longer pound the life out of the rails, so to speak, or shake bridges and trestles to pieces. Every second or third car, possibly every one, will carry a motor, taking its power from stationary dynamos placed at intervals along the track. The loads will be lighter, and, therefore, the grades may be made heavier. The tracks of other roads and public and private roadways will be crossed either by tunnels or bridges, and the danger at grade crossings will be obviated; and an unbroken line of fencing will otherwise protect the trains. This lightning method of travel will be both safer and quicker than the present one.—*Savannah (Ga.) News.*

HOW TO PRESERVE BUTTER.

Mrs. J. G. Otis of this county exhibited a sample of her handiwork at the fair in the way of preserved butter. She had put away samples of granulated butter in June and July of the present year. The butter was washed thoroughly but not worked, then in the granulated form put into brine in glass jars, the air excluded as in fruit jars, and kept in a cool, dark place. Just before bringing to the fair, she removed the brine from the June jars, immersed the granulated mass in fresh buttermilk, then removed it, worked the butter out, made the butter into a cake. She did the same with the July butter, and brought with it a cake of fresh butter. Experts tasted the different samples and pronounced them all first-class butter of equal quality.—*Kansas Farmer.*

LIGHT HOGS.

The light-weight hog promises to become fashionable. The large, fat, greasy porker which used to delight the grower, arouse the admiration of the neighborhood, and excite the active competition of the buyers, is surely giving place to the smaller, more solid, and sweeter-meated pig. This is the result of several factors, two of which are the substitution of cotton-seed oil for lard, and the rapidly growing taste for the sweeter, more healthful meat which is found in the young and smaller pig. The southern cotton-field can produce lard cheaper than the northern hog-grower can, therefore the latter must turn his attention more to the production of pork and less to that of lard. Breeding, rearing, and feeding should be conducted with a view to this result.—*Farm, Stock, and Home.*

SCIENCE IN EDUCATION.

The report of the British Royal Education Commission assumes that if the object of elementary education be the fitting of pupils in general for those duties which they will most probably be called on to perform, instruction in science is only second in importance to instruction in reading, writing, and arithmetic. The soundness of this view is illustrated by the fact, also declared in the report, that the preponderance of opinion among the teachers examined is that no subject is better calculated to awaken the interest and intelligence of the pupils than science.—*Popular Science Monthly.*

TRAINING OF FARMERS' CHILDREN.

Many farmers overlook or neglect the best crop of all—the children. The training of these is of far more importance than the culture of everything else that grows out of the ground or in it. Any one who will recall to mind all his acquaintances from childhood up, and note the difference between them in after life, will be astonished by the evidence thus afforded of what superior men and women proper early training makes; I mean those who have been educated physically, mentally, morally, and technically, making a harmonious whole.—*Arbas, in New York Tribune.*

KANSAS THRIFT.

Saline County farmers are holding their wheat for higher prices. They say they are able to hold it until spring if necessary.

Fully seventy-five threshers are at work in this county daily, and yet up to this date less than one-sixteenth of our wheat crop has been threshed.—*Ellsworth Democrat.*

An artesian well has been put down at the school house this week. The flow is rather weak at present, but it can probably be improved.—*Spring Lake Hornet.*

Secretary Rusk, who recently visited the various sugar factories in the State, has made the announcement that he is surprised and gratified with the prospect of the sugar industry in Kansas.

A large body of white limestone of the very finest quality for building purposes has been found near Webb City. It is said to be of much the same nature as the famous Bedford (Indiana) stone, but firmer.

A man in Kingman County sold his peach crop of about 200 bushels at 40 cents per bushel, and they were all shipped to Colorado. That is the way that money grows on trees in Kingman County.—*Winfield Courier.*

Prof. Vasey, Botanist of the Agricultural Department at Washington, visited Garden City in the interest of the experimental grass farm. He is reported as having expressed great satisfaction with the progress made thus far.

Farmers are beginning to prepare for storing the vast crop of corn, and hundreds of new cribs are being built in this neighborhood. Wagon load after wagon load of lumber goes out every day for that purpose.—*Whitewater Tribune.*

Over 130,000 bushels of corn and oats have been shipped from Axtell during the past year by the elevators, and it is safe to say 10,000 bushels have been shipped by other parties, and probably another 10,000 of wheat, flax, millet, etc., or a total of at least 150,000 bushels.

G. S. Porter is harvesting his broom-corn crop. He says the corn is quoted at \$100 per ton for the best to \$80 for the lowest. Mr. Porter says that part of his corn will go fully one-fifth of a ton per acre and of the finest quality, which will bring \$20 per acre.—*Burlington Independent.*

E. L. Halliday brought a fine lot of pears to town. Three of them left at this office weighed forty-four ounces. The tree from which they came bore six bushels last season and about four this year. It is one of his own grafting, the scions being grafted onto an apple root.—*Cedarvale Star.*

J. E. Martin has contributed the greatest wonder of the day to our exhibit, in the shape of a White Bermuda sweet potato, five feet and five inches long, and seven and one-half inches in circumference. This is a genuine potato, and no fraud about it in any way or manner. Think of it! A sweet-potato nearly five and one-half feet long!—*Louisburg Herald.*

An addition has recently been made to the food plants produced in this country, which in time may prove a strong rival of Indian corn. The new plant is the sweet cassava of the tropics. It is very productive, and good land will give at least ten tons of cassava root per acre. Its main use is for conversion into starch, tapioca, and glucose, although it can be utilized in a number of ways.—*Wilson Echo.*

It is nothing for Kansas to raise two big crops of corn in one year. Erastus Ruse, living in Rock Township, planted ten acres of corn in wheat stubble after the crop had been harvested. The corn is now in roasting ear, and will go from thirty to forty bushels per acre. The ears are long and well filled, and if winter does not come too soon will mature and make one of the best crops ever raised.—*Winfield Courier.*

The county displays at the Kansas State Fair last week were worthy of all praise, and in the awards, Wyandotte County came out first, Shawnee second, Ellis third, Jewell fourth, and Kiowa fifth. In the awards for fruit, Allen County scored a victory, Jewell following for second place. The display of fruits by individuals was also large, and goes to prove that the Prairie State can produce good fruit if she cannot produce lumber.—*Live-Stock Indicator.*

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Mrs. Winchip was in Topeka one day last week.

Miss Agnes Fairchild spent part of last week in Topeka.

The carpenters and painters have wrought quite a change in Secretary Graham's house.

According to the *Manhattan Republic*, Prof. Hoffer has been granted a patent on a new out-door game called Ringolo.

Mr. J. E. Harms, editor of the *McPherson Anzeiger*, with a friend, Mr. Isaac F. Wiens, were among our visitors on Friday.

Ex-Superintendent of Printing, Geo. F. Thompson, is a candidate for Clerk of Riley County, with, so report says, good chances of success.

Many of the hundred ladies who are attending the State Convention of the Young Ladies' Christian Association visited the College this week.

Base-ball nines from the Fourth-year and Third-year Classes were pitted against each other yesterday, resulting in a draw game on account of darkness.

Two handsome volumes—Nos. 1 and 2—of the American Aberdeen-Angus Herd-Book come to us this week from Mr. Thos. McFarlane, Secretary, "with the compliments of the American Aberdeen-Angus Breeders' Association."

The Virginia creeper is taking on its rich autumnal hues to the admiration of all visitors; and we who see the vine daily witness the changing tints with more of pleasure in the sight than sorrow that cold winter is heralded by the falling leaves.

President Fairchild received a telegram Tuesday afternoon stating that his oldest brother, Edwin H., President of Berea College, Berea, Ky., was lying at the point of death. President left the same night; and, if not delayed on the way, reached Berea Thursday evening.

Nineteen feet and two inches, to be accurate, is the height of a stalk of sorghum of the Golden Rod variety which now graces the walls of the farm office. We wait patiently for some brother of the quill to tell us of any sort of an annual growth that equals this elongated streak of sorghum of ours.

Last week brought a busy season of ensilage making to an end. All told, 230 tons of "cattle kroust" have been stowed away in three silos, corn and sorghum in nearly equal portions having been used. It is interesting to note that on Saturday, the 21st, a force, mostly of students, ensiled about forty tons of sorghum, at a cost of less than forty-five cents per ton.

The writer was pleased to meet Mr. T. T. Hawkes, former Superintendent of the Mechanical Department, while he was in Manhattan last week. Mr. Hawkes seemed to be, in fact, said he was, enjoying good health, and that he was in good spirits his cheery words testified. He is still at Little Rock, engaged in carpentry, for which he cherishes a fond regard.

The long stretch of plats of forage plants, now in full luxuriance of seed leaf and stem in field No. 4, at the rear of the Mechanical Building, affords just now a striking and most pleasing spectacle in vegetable growth. Rice corn, kaffir corn, pearl millet, cow peas, teosinte, seredella, dhourra, sorghums saccharine and non-saccharine, all in great variety, make up the show.

A delicately printed card, just received, announces the wedding of Prof. T. H. Dinsmore of the State Normal School to Miss Minnie Curtiss of Syracuse, N. Y. The many friends of Prof. Dinsmore throughout the State will join in congratulations upon the occurrence of this most happy event, and in wishes for the long continuance of the wedded life so auspiciously begun.

Mr. Simon Emerick of Alexandersville, O., visited the College this week on a tour of inspection

among the various agricultural colleges of the West, with a view to seeing where his son can best pursue a post-graduate course in agriculture after having completed a Latin-scientific course at Wittenberg College, Ohio. Mr. Emerick thinks that he may find it profitable to settle here with his family for a time.

The wonders of the phonograph were shown up by Prof. Hood during the public hour and a half yesterday in a way that would have delighted Edison himself. A clear yet succinct account of the steps in the growth of Edison's idea, and the principles involved, were followed by a most entertaining exhibition of the powers of the instrument itself, making altogether a discourse full of new things to all present.

A good deal of the products of the farm have recently been sold to persons living in widely separated sections of the State. Berkshires have gone to Chas. Kleiner, Riley; C. L. Thomas, Dwight; and C. A. Moherman of Wellsville; and Poland-Chinas to Jas. Ryan, Fancy Creek, and E. W. Moon of May Day. Seed wheat has also been in brisk demand, considerable quantities going to Sumner, Montgomery, Labette, Mitchell, and other Kansas counties.

The immensity of the Kansas harvest this year only begins to dawn upon one as he enters the harvest field. We have already told of yields of wheat of over fifty bushels per acre, and now our corn crop promises, with yields of ninety and one hundred bushels per acre, made in the case of several sorts, to do a like job of record-breaking. But it is in harvesting green crops for the silo that the crop shows itself most impressively; for example, we have taken twenty and even twenty-five tons per acre of corn from large areas, and the sorghum has done nearly or quite as well, while the crop of teosinte, which has for the most part, kept our herd several days, has yielded at the rate of thirty-one tons per acre.

Prof. Shelton returned from Hutchinson and Liberal on Tuesday morning. The institute held at Hutchinson on Friday and Saturday was not always as well attended as it should have been, although the discussions were carried on in excellent spirit and the interest never for an instant flagged. The condition of things in Southwestern Kansas is reported as most discouraging; that region having had almost uninterrupted dry and hot weather since about the middle of June. This is likely to prove a serious matter for the great sugar factories erected at Mineola, Meade, Arkalon, and Liberal. Not only has but little of the cane planted made a crop, but the quality of the same, as reported by the Government Chemist, is inferior, a large proportion of the small amount offered having so far been rejected as worthless for sugar-making. The mills in Southwestern Kansas will be able to do but little this year beyond testing their new machinery.

THE WEATHER FOR SEPTEMBER.

The mean temperature for September, 1889, was 63.19°. Of the thirty preceding Septembers, five have been cooler,—1866, '68, '69, '83, and '85,—the coolest being in '68, the mean being 60.73°. The mean temperature for the series of 30 Septembers is 67.14° (September of '65 no record). The highest mean was in September of '63, and was 73.18°. September of '89 is, therefore, 3.95° below the average.

The highest temperature for the month, and for the summer, was 101°, on the third; the lowest, 30°, on the 26th—a range of 71°. A light frost was reported on the lowlands on the morning of the 16th. A decided frost was observed on the morning of the 27th.

Rain fell on four days. The total for the month was 1.917 inches, which is 1.367 inches below the average. The greatest September rain-fall recorded is that of 1861, being 8.06 inches, and the least is that of 1860, being but .35 of an inch.

The run of wind for the month was 5,206 miles (one day's record being lost). This gives a mean daily velocity of 179.5 miles and a mean hourly velocity of 7.48 miles. The highest velocity obtained during the month was 27 miles per hour on the afternoon of the third between 4 and 5 o'clock. The highest daily velocity was 416 miles on the third. (This was the day the thermometer registered 101°. An exceedingly hot windy day). The lowest daily velocity was 73 miles on the 20th.—*Assistant Chemist Breese.*

GRADUATES AND FORMER STUDENTS.

Mary E. Cottrell, Third-year student last year, was a visitor Thursday.

Elizabeth L. Stingley has been compelled to leave College on account of ill health.

Susan A. Noyes, Second-year student in 1888-89, spent Thursday with College friends.

W. L. Morse, Third-year in 1887-88, has returned with the intention of finishing the course.

Word comes indirectly of the marriage of J. R. Miller, student in 1885-86. He is engaged in Y. M. C. A. work at Atchison.

Prof. W. E. Whaley, '86, Principal of the Manhattan Schools, has secured a copyright a monthly and term record for the use of teachers.

J. W. Van Deventer, '86, in a letter of good cheer from Imperial, Neb., mentions the marriage, at Mehama, Oregon, of W. R. Wyatt, Second-year in 1886-87.

Geo. L. Clothier, a second-year student, being threatened with fever, of which he was ill last year, has thought it best to drop out in the hope of warding off the disease.

E. H. Kern, '86, of Mankato, called this week for the first time since he graduated, and found much that was familiar despite the rapid improvement of grounds and buildings.

Daniel B. Brummit, student in 1886-87, is the author of a "pome" entitled "A Song of Kansas," sung by students of Baker University to the air, "My Country 't is of Thee."

C. E. Helmick and C. E. Mails, former students, and who have of late achieved considerable prominence in Y. M. C. A. circles, have been appointed missionaries to the Congo country.

Lieut. Eli A. Helmick, Fourth Infantry, U. S. A., Second-year in 1882, is to be married, in November, to Miss Lizzie Clarke of Newport, R. I., who was a Second-year in 1883. Old friends hereabouts will join in wishing for these young people all the joy and worth which their young lives seem so abundantly to promise.

COLLEGE SOCIETIES.

SOCIETY HALL, September 27th.

The Ionian Society was called to order by President Waugh. All joined in singing "Dennis," followed by devotion. After roll-call, the following members were initiated: Misses Turner, Pierce, and Frost. The next in order was music, which was a duet, "The Curfew Bell," sang by Mamie Houghton and Anna McConnell; music committee, Anna McConnell. Select reading, entitled "Two Neighbors," was read by Susie Hall. The *Oracle* was presented by Alice Vail. The programme closed with music, a quartette, composed of Misses Pearce, Kinney, Houghton, and McConnell. Under the head of unfinished business, the report of the committees was accepted. Under new business, Miss Whitney gave notice that the following week she would make a motion to add a new article to the constitution. The article was then read to the Society. The names of Laura Barr and Fanny Kimbel were proposed for membership. Assignment of duties. The minutes were read and approved. The report of the Critic was then listened to. Roll-call with quotations from several prominent authors, after which the Society adjourned.

S. E. H.

HAMILTON HALL, September 28th.

When President Van Zile called the Society to order the room was well filled with students, there being a number of visitors. The first business that occupied the attention of the Society was a report by the Board of Directors recommending C. D. Adams, N. G. White, and H. R. Phillips as suitable persons to become members of the Society. The report was received, and the gentlemen were elected members. An essay by B. Bateman, entitled "My Excursion to an Indian Dance," was received with applause. F. A. Waugh presented the question, "Should the owners of the Johnstown reservoir be held responsible?" The speaker related the circumstances of the flood. The dam had been condemned by competent engineers who pronounced it very poor in construction. For this the owners were to blame. F. A. Campbell began the negative by giving a touching description of the horrors of the flood. When the dam broke the inhabitants of the valley were warned in time to save themselves from the horrible deluge. E. M. Blachly further continued the argument affirmative. R. Snyder, after reviewing some points, gave evidence showing that the affirmative was incorrect. In his second speech Mr. Waugh denied the assertion that the dam was built as a feeder for the canal. He closed by reading extracts from a book entitled, "The Johnstown Horror." The debate was closed by Mr. Campbell. He read some notes of the flood from newspapers of that time. The debate was interesting, and the speakers held the attention of their audience. The Judges decided unanimously in favor of the negative. Recess, ten minutes. M. G. Riddell next favored the Society with a declamation, entitled "Back From College." Messrs. Waugh and Coburn rendered a piece of music entitled "Summer Day Waltz." C. P. Hartley gave a select reading from one of the late papers. James E. Thackrey presented the Society paper, the *Recorder*. The editorial showed thought and careful preparation on the part of the editor. A select extract from the pen of an eminent author was read by T. D. Hogbin. Propositions for membership being in order, the names of F. A. Thackrey, G. H. Wheeler, G. T. Umbarger, C. S. Ginter, Frank Yeoman, T. W. Ayers, and A. T. Ellsworth were proposed. In behalf of the outgoing Board of Directors, H. B. Gilstrap made a brief report of the business transacted by the Board. Brief report by the Critic. Adjournment. E. C. C.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Wesleyan University at Salina opened with over 200 students in attendance.

The public schools of Larned had to be closed last week on account of the prevalence of diphtheria at that place.

Mr. J. D. McClaren, a graduate of the State University, has received the Professorship of Natural Science at Maryland University.

Conway Springs is building a normal school building, and is expecting to receive students and provide teachers by the close of this month.

The State School Fund Commissioners will not now purchase school-district bonds unless a majority of all the electors residing in the district cast their ballots in favor of the issue.

Marshall County has adopted a uniformity in school books. This list contains Ray's Arithmetic and Algebra, McGuffey's Readers, Hyde's Grammars, Eclectic Geographies, Reed's Spellers, and Webster's Dictionaries.

The Atchison County Sunday School Association, under the Presidency of Regent Wheeler, has issued a programme for its nineteenth annual meeting, which gives promise of much good. The meeting is held this year at Arrington.

The School Board of Russell have purchased a full set of maps, White's Manikin, McGuffey's Reading Charts, and Webster's Unabridged Dictionary for each of the four schools of their District, besides purchasing two new teachers' desks and three globes.

Our neighbors just over the State line say that Kansas City, Mo., has opened the fall term in 30 buildings with 290 teachers and 42,920 children of school age. They add that five new school buildings are in the hands of contractors, and that the school bonds are selling at 2¾ per cent premium.

Highland University begins the work of another year with over one hundred students,—an unusually large proportion of the new students being from a distance. Prof. W. C. Carruth, from Clinton, New York, comes to fill the chair of ancient languages, and Rev. A. B. Irwin, pastor of the church at Highland, has been elected President pro tem.

The State Convention of the Christian Church, which met in Topeka last week, raised, by personal pledges, \$30,000, completing the endowment for the Garfield University at Wichita of \$100,000. It was a marvelous thing to do, for that Church is not strong in this State. The students of the University and their literary societies pledged \$4,000. The Professors and other citizens of Wichita gave \$5,000, besides generous donations previously made.—*Exchange*.

In response to the cordial invitation of citizens of Wichita, the Kansas Academy of Science will meet in that city, beginning at 9 A. M., October 24th. Members or others will forward to the Secretary, at earliest convenience, titles of their proposed contributions to the programme, in order that final announcements may be made at once. Efforts are being made to secure reduced rates of railroad fare to those in attendance. Prof. Popenoe of the Kansas State Agricultural College is Secretary of the Academy.

"Money talks." The wills of President Barnard and Professor Loomis tell the story of their opinion of the value of a university. President Barnard has left all his property, perhaps \$80,000, to Columbia College, partly for a fellowship in science and partly to endow the scientific department of the library. Professor Loomis's will leaves all his property, supposed to be a quarter of a million dollars, ultimately, and a third of it immediately, to the astronomical department of Yale College. Professor Loomis earned his property by writing text-books, and increased it by a frugal scholarly life. Both these gentlemen gave their lives to the service to which they now give their property. This is their testimony to the importance of science in university instruction and of scientific research, and it is an illustration, in a single department of the great field of human development, of what intelligent and far-sighted men can do, and ought to do, for the public. The lesson is not alone for the small, very small class of rich college teachers.—*New York Independent*.

TRUE BRAVERY.

Mr. Welch's history teaches us a lesson how to meet life's troubles. Just as he gained a reputation and a good income seemed assured him, he was attacked with cancer on his tongue. But the awful disease never checked his witty pen. It was his calling to make the world smile, to cheer the sad-hearted, to smooth out the wrinkles from the troubled brow, and he would not let his beneficent work be arrested by his own keen suffering and crushing anxieties. The cancer was cut out, and, though his speech was badly affected, he labored on as cheerily as in the earlier days. After two years a second cancer appeared on the breast. This gave the terrible revelation that the disease was in his system, and could not be eradicated.

But his family were to be provided for, a wife and four children, the eldest but eight. "I cannot stop to think of myself," said the brave man, as he courageously toiled on. The editor of *Life* remarks that often, as his manuscript was taken from the envelope, it smelled of the anæsthetic of some painful surgical operation. He bore his troubles all himself, and the reader who was cheered by his witty lines was never allowed to suspect through what agony they came. The man was a hero, and the story may teach us all that whether it be our work in life to prepare sermons, or to paint pictures, or saw wood, we should do it with our might. This one, who amuses us with his writing, preaches us a sermon in his life.—*New York Evangelist*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope, but fuller explanations are found in the Annual Catalogue.

FIRST YEAR.

Fall Term: Arithmetic, English Analysis, Geometrical Drawing, Industrial.
Winter Term: Book-keeping, English Structure, United States History, Free-hand Drawing three times a week, Industrial.
Spring Term: Algebra, English Composition, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed, Elementary Chemistry, Horticulture, Industrial.
Winter Term: Geometry, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).
Spring Term: Geometry completed, Projection Drawing, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying, Anatomy and Physiology, General History, Industrial (Farm and Garden).
Winter Term: Mechanics, Agricultural Chemistry, Rhetoric, Industrial.
Spring Term: Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week, Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.
Winter Term: Logic, Deductive and Inductive, Zoology and Veterinary Science, Structural Botany, Industrial.
Spring Term: Geology, United States Constitution, Political Economy, Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSRUP, Proprietor.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75".

TWO of our specialties:—

LADIES' FINE KID SHOES, \$2.00.
MEN'S W. L. DOUGLAS CALF SHOE, \$3.00.
We keep a very complete assortment of Men's, Women's, and Children's shoes of the best quality, and sell them at the lowest prices at which reliable goods can be sold. **LESLIE H. SMITH'S SHOE STORE.**

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 Professor of English Literature.
 MRS. NELLIE S. KEDZIE, M. Sc.,
 Professor of Household Economy and Hygiene.
 MRS. ELIDA E. WINCHIP,
 Superintendent of Sewing.
 OZNI P. HOOD, B. Sc.,
 Professor of Mechanics and Engineering, and Superintendent of Workshops.
 ALEXANDER B. BROWN, A. M.,
 Professor of Music.
 JOHN S. C. THOMPSON,
 Superintendent of Printing.
 JOHN F. MORRISON, Lieut. 20th U. S. Infantry,
 Professor of Military Science and Tactics.
 FRANCIS H. WHITE, A. B.,
 Professor of History and Constitution.

ASSISTANTS AND FOREMEN.

J. T. WILLARD, M. Sc., Assistant in Chemistry.
 C. M. BRESEE, M. Sc., Assistant in Chemistry.
 JENNIE C. TUNNELL, B. Sc., Assistant Librarian.
 F. A. MARLATT, B. Sc., Assistant in Entomology.
 H. M. COTTELL, M. Sc., Assistant in Agriculture.
 WM. SHELTON, Farm.
 S. C. MASON, Gardens.
 WM. BAXTER, Greenhouse.
 C. A. GUNDAKER, Blacksmith Shop.
 W. L. HOUSE, Carpenter Shop.
 A. C. MCCREARY, Janitor.
 W. T. SWINGLE, Assistant in Botany.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

MILES'S SILOS, ENSILAGE, AND SILAGE.*

THE literature of the silo is the striking fact of recent agricultural discussion. New books, bulletins, essays, and newspaper articles innumerable bearing on the only method of preserving green fodder have appeared in the last two or three years, while scraps of information bearing on the same theme are caught up and published and republished in periodical publications of every class having general circulation. All this does not prove that the silo has come "to stay," or that the hay bay everywhere must give place to it. These facts simply show a deep and wide-spread interest in the new method of fodder preservation, and nothing more.

It is not too much to say that Dr. Miles's book is the most complete, the most scientific and thoroughly practical,—the best, in short,—exposition of the subject that has yet appeared. It is a masterly treatise, bringing the whole subject in its historical, scientific, and practical bearings, down to date. To the general reader who wishes to get a clear idea of the present status of the silage question, to the scientific man desiring to note the bearing of principles upon this subject, and especially to the practical man who wishes to know why as well as how, the new book will prove invaluable.

The reader may form an idea of the scope of the work, and the author's treatment of particular topics, by a brief statement of the author's views.

That M. Goffart, who published his book on ensilage in 1877, did not, as is often ignorantly asserted, originate the silo idea, is clearly enough shown. "The preservation of green fodder in closed chambers, or pits," the author tells us, "was practiced in Europe previous to the beginning of the present century, but the early history of the process is involved in obscurity." The ensilaging of maize had been extensively practiced in both Germany and France long before the publication of Goffart's book. Indeed, the distinctive features of Goffart's system—heavy stone masonry silos, and the weighing of the silage—have been shown by abundant recent experience to be very expensive and totally needless. The old Goffart notion that the silo must be made of solid masonry has proved a delusion most difficult of eradication. The masonry is a good conductor of heat, is porous, and is always costly. In the two cases in which we have seen silage packed in a stone wall silo, the spoiled silage amounted to fully one-quarter of the contents of the silo. Where the wall is dressed over with a coat of cement, or lath and plaster, the ensilage will keep well, but such a silo is no better than one of wood except in point of durability, and it is vastly more costly.

Our author takes the sound view that a number of small silos are better than one large one of equivalent capacity. The large silo exposes a large surface of silage during the time that it is being fed out; and, unless the amount fed out daily is large, considerable loss from moulding and decay is likely to result. We greatly prefer removing the silage by beginning at the top, taking it off an inch or more deep each day as the wants of the herd suggest, and shoveling the silage through a small shaft, located next the silo wall, to the ground.

In calculating the capacity of the silo, Dr. Miles uses as a basis of computation the current facts regarding the weight and daily consumption of silage by cattle, placing the weight of the cubic foot of ensilage at 40, and the daily consumption of silage per cow at 50 lbs. Of course there is silage and silage, and our experiments of last

* "Silos, Silage, and Ensilage." A practical treatise on the ensilage of fodder corn. By Manly Miles, M. D., F. R. M. S., Orange, Judd County, N. Y.

year made with very great care gave figures considerably lower than these. Our corn ensilage last year weighed exactly 34 lbs. to the cubic foot, and the average daily consumption of silage by each of 60 head of cattle, one year old and upwards, fed exactly four months, was 34 lbs. Our largest and most greedy cows were unable to consume much more than 50 lbs. of silage daily, a slight increase on this amount being almost invariably followed by purging and like unfavorable symptoms.

Dr. Miles discourages the thick seeding of corn designed for the silo because of the feeble, immature, and watery character of the plants thus grown. It is doubtless generally true, as the Doctor remarks, that "Indian corn will yield a greater aggregate of valuable cattle food per acre under good farm management than any other crop," although we are inclined to think that, for Kansas, sorghum is a serious rival of the great staple for the purposes of the silo. Fodder corn should never be sown broadcast; it should be sown in drills $3\frac{1}{2}$ to 4 feet apart, and kept thoroughly cleaned by the use of the cultivator, or, if necessary, the hoe.

The author favors cutting silage corn when it is well matured. "Seed production," he tells us, "or provision for seed formation, marks the summit or limit of the profitable work which plants can do in the manufacture of food for animals; and the farmer will find his interests are best subserved by keeping up or allowing these activities to continue until the limit is at least nearly reached."

An interesting chapter is that on the filling of the silo, in which the philosophy and practice of "sweet ensilage" making are fully and clearly set forth. Dr. Miles was the first to make clear to the world how the very heat of fermentation could be made to destroy or hold in abeyance the ferment that produces the sourness of poor silage. The method of slow-filling originally recommended by Dr. Miles, and now so generally used by careful siloists, is taught with great reasonableness and in very full detail.

In all this we are aware that we give but a very imperfect view of an altogether admirable book. The volume is capitally illustrated, by which we mean that the cuts are not mere pictures, but real illustrations of the text. The solid merits of the book ought to carry it to the home of every progressive farmer.—Prof. Shelton.

MILITARY SIGNALING.

TO most citizens of this country no branch of our military service is so well known as the "Signal Service," not for its military signaling, however, but for work entirely disconnected from military duty—the weather service.

Although the chief occupation of the signal corps of the army has nothing to do with military signaling, there is such a thing, and it is taught to officers and enlisted men of the line of the army, not only at West Point, but at the schools of application and at every post.

While speaking of it as military signaling, and while it finds its principal application in the army and navy, it is by no means limited in its use to these organizations. One part of it—telegraphy—has but a slight use here as compared with its use in civil life.

The importance, in time of active military operations, of being able to rapidly communicate with comparatively distant points is apparent to all. Where telegraph lines already exist, and can be used by the military authorities, they are, as far as they extend, the best means of rapid communication. Temporary lines can be very rapidly constructed by the modern "telegraph train."

These lines are sometimes of covered wire laid on the ground, where they are safe from being cut or broken by passing wagons, and so forth. They answer every purpose, and are easily constructed. Where the line on the ground would not answer, it is placed on light poles carried by the "train;" the wire, in this case, is not necessarily covered. The alphabet used is the Morse code in use on the commercial lines of the country. By a recent order this code is used throughout the service.

The heliograph is another means of communication between distant points. It consists of a small mirror mounted on tin-foil, with such adjustments that the sun's light may be received upon it and reflected to a distant station. In front of the mirror is a small shutter, which may be raised by pressing on a small lever, or key. By pressing down on the key, the shutter is raised, and the reflected light is seen as long as the key is down. By means of short and long flashes, corresponding to the dots and dashes of the Morse code, messages are sent. The best heliographs, under the most favorable circumstances, can be used over a distance of nearly fifty miles, but in most cases cannot be used for nearly that distance. Of course they can only be used when there is sunlight. Messages transmitted by throwing flashes from a strong light at the first station against some dark background visible at the second. This method has been used by throwing the light against the clouds.

A staff to which a flag is attached is a very common method of signaling. A motion with the flag to the right corresponding with the dot, and to the left, with a dash. At night, in place of the flag, a torch is attached to the staff, and another, called a "foot-torch," is laid on the ground in front of the sender as a point of reference. The message is sent the same as with a flag.

Messages may be sent by means of two lights of different colors, showing one for a dot and one for a dash.

These are some of the more simple devices for signaling. There are many more, and many arrangements for cipher work that show considerable ingenuity on the part of their authors.—*Lieut. Morrison.*

P-U-S-H.

Mr. T. B. Terry is a farmer in the truest sense of the term, practical and successful. At a recent farmers' institute this gentleman said:—

"Upon the storm-door of many of the hotels we see four letters, p-u-s-h. This means that if we want to get to the warmth and cheerfulness within we must *push*. If we farmers want to achieve success we must push. A traveling man was out in the West on his first trip as salesman, and meeting with poor success, which he attributed to several rival salesman just ahead of him, he sent back word and wanted to be called in. His employer telegraphed to him "push ahead," and he pushed and succeeded. A neighbor's farm produced only one load of hay per acre, and was going down all the time. It passed into other hands, and rotation was introduced. Last year this man threshed thirty-six bushels of wheat per acre from it, all due to push.

"Another farm was devoted to dairying alone, and poor returns were obtained. A little push was introduced, and last year 1,000 bushels of wheat were raised, twenty-nine acres were devoted to potatoes, and more and better cows were kept. A few years ago a man in Iowa had a farm for which he paid \$70 per acre. He spent \$30 per acre tilling it, and was laughed at by his neighbors. But he was a stirring man, and took the reins firmly in his hands. For four years prior to 1888 his farm netted him 10 per cent clear on his investment, and he thought that 1888 would show a still greater return. He has push.

"An Ohio clergyman made so much off the twenty acres connected with his parsonage that the farmers of his congregation compelled him to stop, because he was making more than they. The farmer is very apt to blame the middleman, the tariff, and what not for his failure, when he need not go beyond his own door to find the fault. Governor Hoard of Wisconsin interviewed 100 farmers con-

cerning their success or lack of success, in 1889, and not one of the many failures was laid at the door of the farmer himself. The Governor said that he concluded that all were wrong in assigning the cause of failure, and that in every case the farmer was to be blamed.

"Even in Dakota push tells. A friend there had potatoes to sell to his farmer neighbors. He had twenty bushels of wheat per acre when harvested, and estimated that the crop yielded thirty bushels, the other ten bushels being lost by a storm. Not another farmer in his neighborhood had over eight bushels per acre.

"Make the motto push to hang over your barn door. What's the use of living if you can't improve a little?"—*American Farm News.*

HELP NEEDED IN SOUTHWESTERN KANSAS.

The following extract from a letter from Col. S. N. Wood, published in the *Topeka Capital*, states clearly the condition of Stevens County. This appeal ought not to be in vain:—

"Settled by families in moderate circumstances, in a mild climate, on the richest soil in the world, we have had three years of failures. You ask if nothing was raised? We answer, yes. A few raised wheat, oats, kaffir corn, but only a few, as our people were unable to procure seed. Prof. Blake had predicted three years of drouth, yet the people had stayed, hoping for a better season; but had our people had seed, with proper cultivation, good wheat and small grain of all kinds could have been raised. We must make another trial. The State cannot afford to give up Southwestern Kansas. Neither can a grateful people whose granaries are overflowing with abundance afford to let our people shiver with cold for want of clothing or fuel, starve or even go hungry for want of food. In appealing to you we have confidence that with grateful hearts you will respond to our call.

"What is needed is clothing of all kinds for men, women, and children, coal for fuel or money with which to buy it. There is no timber in our country, and our only fuel is coal from Kansas and Colorado.

"We estimate that nine-tenths of our people must have help. There is scarcely a dollar in the country. Then we must have seeds of all kinds—garden and vegetable seeds. We need good spring wheat for seed; early varieties of seed corn, such as the early Nebraska, Leamon, etc.; seed potatoes, oats, barley, kaffir corn, milo maize, and African millet.

"All donations, whether food, clothing, fuel, or money, should be sent to the Board of County Commissioners—A. R. Kilgore, Chairman, Woodsdale; O. W. Kirby, Voorhees; J. B. Chamberlain, Hugoton. Those sending by the Santa Fe railroad should ship to Courtland; those sending via the Rock Island, to Liberal. Pay no money to irresponsible parties who may be in our names, but send your donations to our Board of Commissioners, or some one of them as above, who will see that not a dollar is misappropriated."

WORTH KNOWING.

A curious discovery connected with the recent disastrous fire at Spokane, Wash. Ty., is reported in a local paper. A safe becoming cracked by the intense heat, the books inside were charred and baked to a blackened crisp, though they remained intact. Not a figure could be read. One of the bookkeepers, while turning over the leaves, noticed that where his finger, which was wet, touched the page the figures became legible. He procured a paint brush, dipped it in water, and dampened the whole page, and was gratified to see all the figures dimly outlined. Two bookkeepers then went to work, and by wetting the pages and carefully turning the leaves, succeeded, in a few days, in transferring all the accounts to a new set of books.

A MEAT INSPECTION LAW.

The final action of the United States District Court, sitting in St. Paul, in declaring the Minnesota inspection law unconstitutional and void, probably settles the question of such hasty legislation. Judge Nelson in his opinion holds that the law was in plain violation of the commercial clause of the constitution which provides that the congress shall have control of the commerce between the States and with Indian tribes. He also held that it was in violation of the constitution which provides that the citizens of each State shall be entitled to all the privileges and immunities of the citizens of the several States.

KANSAS THRIFT.

Greeley County is to have a \$20,000 court house, bonds having been voted for that purpose.—*New West Echo.*

More than twenty counties in Kansas have each this year raised a larger corn crop than all the New England States combined.

The champion wheat raiser of Kansas is Lee Charles, who lives near St. Joseph, Reno County. His crop this year measured 18,000 bushels.

Wm. Plummer picked a quart of nice large ripe strawberries from his vines the other day [October?] Kansas beats the world.—*Norton People.*

The walls of the Currie windmill factory on the stove foundry grounds are built to the top of the windows, and will be about completed this week. New windmills will soon be shipped from Manhattan.—*Mercury.*

Meade County has a greater number of artesian wells which discharge a greater volume of water than any other locality of like area in this country, if not in the world, and there seems to be no limit to the number of such wells that may be put into operation.—*Kansas City Star.*

Nothing in Kansas? Listen to this. Our tin shops have turned out during this season 31,000 tin cans into which has been put fruit of all varieties. Counting that one-third of this number were two-quart cans, we find that 41,000 quarts of fruit have been put up in tin cans alone. Then there are the hundreds of gross of glass jars which have been sold by dealers.—*Clay Center Dispatch.*

Farmers who thought it would not pay to raise tomatoes at 20 cents a bushel delivered at the canning factory, are beginning to change their minds. This has proved about their best paying crop this year. They get the money for it, too, at the time when there is no other crop that can be profitably placed in the market. There will probably be a big tomato crop planted next year in this vicinity.—*Osage City People.*

"Ninety-nine per cent of ambition to try, and one per cent of talent, is all that is necessary to insure success in whatever we undertake." The foregoing words are from an eminent brain, a practical, business brain. Cherryvale certainly has the one per cent of talent. Let us proceed with the building of this city and finish what we undertook several years ago. Go back to the old-time manner of work, fellow citizens, and we will guarantee success.—*Cherryvale Republican.*

The editor of this paper took one dozen ears of corn to the New Era Exposition at St. Joseph which averaged 14 1/2 inches, some of them being over 15 inches. This was the longest dozen there by more than one inch. They were raised by Mr. Pickney on the old Travier farm, now belonging to Stackpole & Tobey. We also took two dozen ears from the farm of James Creighton, which is being farmed this year by James Alge and sons, one dozen of which were the heaviest ears there, weighing 23 pounds. One ear in the other dozen measured 16 inches and was the longest ear on exhibition. Thus at this great corn show, embracing products of all the corn States of the West, Washington County had the longest as well as the heaviest ears.—*Washington Republican.*

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

LOCAL MATTERS.

Board meeting on Tuesday next at 3 o'clock P. M.
New students still make their appearance daily.

Prof. E. B. Cowgill of Sterling offers for sale his paper, the *Gazette*.

The Horticultural barn and tool room is essentially completed, wanting only the last touches of paint.

Mr. H. S. Quick of the Land Department of the Union Pacific Railway was a visitor at the College yesterday.

The students' pay-roll for September contained 110 names, and the amounts ranged from 25 cents to \$23.05, with a total of \$479.82.

It was noted at the regular Faculty meeting of Monday last that President Fairchild had never before in the ten years of his service here been absent.

The chapel seats have gained during the past week a set of new boxes for holding the hymn-books. No one needs to be told that they "fill a long felt want."

Mr. Geo. Goheen of College Hill showed his friend, Rev. F. E. Thompson, pastor of Presbyterian Church at Cawker City, through the buildings on Tuesday.

Mrs. Kellerman entertained the Domestic Science Club in the enlarged and newly furnished house last week. The *Republic* speaks pleasantly of Mrs. Kedzie's paper upon "My summer, and what it brought me."

Mr. J. C. Bonnell of the *Kansas and Nebraska Farmer* took through the College on Thursday a party of visitors from Crete, Nebraska. Mr. Bonnell never loses an opportunity to do a good turn for the College and his friends by bringing them together for an hour between trains.

In the heavy work involved in making stacked silage in Field No. 1, on Tuesday, Foreman Shelton got such a violent wrench in the back as to compel him to drop work of all kinds during the two following days. All are glad to learn that, though still sore, he is rapidly mending.

Several games of base ball between selected nines of various classes have occupied the attention of students on Friday afternoons of late. This interest implies a wholesome taste for athletic exercises, and tempered as it is here by earnest devotion to studies, adds vigor to student life.

The new orchestra of fourteen pieces has attracted considerable attention because of its size and the good music furnished. It is made up of two first violins, one second violin, first and second cornet, first and second flute, piccolo, viola, e-flat alto, b-flat trombone, violincello, double bass, and piano.

The first division of the Fourth-year Class occupied the public hour on Friday with seven well-prepared and well-delivered orations. The topics chosen showed variety of interests, and the treatment showed independence of thinking upon the prominent themes of everyday life. The earnest tone of delivery noticeable spoke well for their training as well as their taste and character.

For interesting additions to the greenhouse stock, the College is indebted to Mr. Robert Milliken, of Emporia, who sends fifteen plants, including ten sorts new to us, and not commonly seen in greenhouse collections. We are informed that Mr. Milliken is now breaking up his collection, and take leave to say that the sale offers plant lovers a good opportunity to secure at very moderate cost some fine specimen plants of rare species.

Prof. Brown has received one of the series of charts painted for the College under his direction by a life convict in the penitentiary, a Mr. McNutt, whose services were granted for this purpose by Warden Smith at the request of Governor Humphrey. The work is artistic in every respect, while the chart is a marvel of conciseness in illustration of rhythm. The canvas is some twelve feet by sixteen, mounted upon rollers so as to be readily handled for classes.

Monday will be remembered by the visit then received from a considerable number of the officers and members of the State Convention of the Young Women's Christian Association, lately in session in Manhattan. Everyone here was certainly pleased with what they saw and heard of the ladies, particularly Miss Adams's excellent address

to the students; and the visitors were not backwards in expressing their satisfaction with the visit. The following is a partial list of the names of our visitors: Miss Annie Laurie Adams, Topeka; Mrs. Kingsley, McPherson; Miss Lillian Bowlby, Marion; Miss Grace Houston, Garnett; Miss Josie Silver, Topeka; Mrs. A. B. Stryker, Great Bend; Miss Laura Radford, Lawrence; Miss Belle Stever, Wichita; Miss Bernice Evans, Wichita; Miss Andus, Lecompton; Miss Maud McEckron, Concordia; Miss Maggie Van Slyke, Garden City.

Pres. Fairchild returned on Wednesday morning from the funeral of his eldest brother, Pres. E. H. Fairchild of Berea, Kentucky, who died after a brief illness on the morning of October 2nd, in his 74th year, having served his generation as pastor of various churches for twelve years, as Principal of the Preparatory Department of Oberlin College for sixteen years, and as President of Berea College for twenty years. He was laid to rest near the college which will remain a monument to his earnest, energetic, trustful life, and his devotion to the cause of equal education for white and black.

A large nest well filled with bald-faced hornets, all alive and well, is kindly contributed to the entomological museum by graduate C. W. Thompson. The nest, "well boxed and contents secured from observation," came by express, and was opened with care, admired, a teaspoonful of chloroform temporarily quieting the indignation of the prisoners. This species of wasp has not been observed in this vicinity, and has not been well represented in our collection heretofore. The present colony will furnish the specimens needed to illustrate in full its interesting economy. Mr. Thompson will please accept our thanks for the remembrance.

GRADUATES AND FORMER STUDENTS.

Wm. Knabb, '89, writes that he likes his work as assistant bookkeeper in a Hiawatha bank.

J. U. Higinbotham, '86, goes to Chicago shortly to take a place as collector for a wholesale firm.

W. H. Olin, '89, has been visiting at his home in Butler County, but will begin his school at Wabunsee next Monday.

On Thursday evening last Charles Currie, student in 1886-7, was married at Garrison, to Mira Flemming, student in 1888-9.

F. J. Rogers, '85, and E. F. Nichols, '88, write from Cornell University of full and satisfactory work in mathematics and physics.

G. L. Clothier is at his home suffering from an attack of malarial fever similar to the one which confined him to his bed for many weeks a year ago.

B. M. Bovard, Third-year in 1886-7, is a candidate for County Surveyor in Lane County, having served in that office by appointment of the Governor for the past year.

S. I. Thackrey and Mrs. Nellie Bland Thackrey, both students in past years, have been obliged by Mr. Thackrey's illness, to postpone their schools for several weeks, but expect to begin next week.

James E. Thackrey, Fourth-year, finds himself obliged to postpone his course another year, and will teach this winter. His Class are sorry to lose one of their number, but the next year's class will welcome him.

The *Mercury* this week furnishes the following item concerning the marriage of former students, both Second-years in 1884 5: "Avery-Cragg—On October 9th, 1889, at Zeandale, by Rev. McNair, Walter Avery of Wakefield, and Miss Hattie Cragg of Zeandale."

Oscar Dewey, Third-year in 1888-9, died at Oakwood Linn County, October 8th, of bilious fever, and was buried there near his old home. The members of his class expressed their sympathy for his brother who is still with them, and their respect for their former class-mate, by wearing a badge of mourning at the exercises on Friday.

A CARD OF SYMPATHY.

Mr. G. W. Dewey:—

Friend and Classmate—Having heard with profound regret of the death of your brother and our former classmate, we condole with you most sincerely on the sad event, and if sympathy or friends can be any consolation under the trying circumstances, be assured that we as a class share in your sorrow for his loss. With sincere regards,

YOUR CLASSMATES.

COLLEGE SOCIETIES.

SOCIETY HALL, September 28th.

The programme of the evening opened with discussion of the question: "That Education should develop systematically all the faculties of the student." Messrs. Pfuetze and Arbutnot discussed the affirmative; Messrs. Avery and Chaffee, the negative. The question, as considered, turned on the importance of a general education as contrasted with special training. The argument put forth by the affirmative was, that a good general education is necessary for a starting place; that without such we would become "one-sided," and could not pass proper judgment on the many affairs of life. The negative claimed for special training all the beneficial results derived from the division of labor. The argument was strong on either side, but the Society decided in favor of the negative. Declarations, E. R. Burtis and J. B. Harman. Music, T. C. Davis and W. H. Sanders. S. C. Harner read an essay on Reforms and Reformers. Mr. Harner spoke of some of the leading reformers of the past, and of the influence their work has had as compared with the work of statesmen. He stated that for all the apparent success of a reformer as viewed in the centuries after him, his lot is a hard one, and rarely in his own time does he see the fruit of his labors. The *Reporter* was read by Mr. Sanders. The motto, "Where you goin' to draw the line?" will be appreciated by all recent Websters. We clip the following from an article read on education: "To know so much about grammar, and so much about arithmetic, to know so much science or art, is not evidence that a person is educated. Scores of men go through colleges as good as this, or better, and come out uneducated, while scores who never saw the inside of a college are very well educated. To be possessed of a certain knowledge, and to be able to make use of it at the proper time, is frequently a very different thing. The person who can make good practical use of what he knows we call educated. The one who cannot we call uneducated, for he is no better prepared than he who is totally ignorant of science." Discussion by L. S. Harner, C. A. Kimball, and J. W. Ijams. Messrs. H. S. Willard and W. J. G. Burtis being present, were called on for speeches. Their remarks had the old-time ring, and were well received. H. D.

SOCIETY HALL, October 5th.

The report of the Board of Directors having been heard, motion was made to receive the following named persons into the Society: H. B. Walters, J. Stingley, D. T. Davis, W. T. Allen, T. E. McLeary, Charles Beach, W. W. Robison, Geo. Matthews, and Sprague Farman. Discussion of the question, "That every teacher should be a politician," ensued. Messrs. Chaffee and Taylor discussed the affirmative; J. O. Morse and C. E. Davis, the negative. The principal proof brought out by the affirmative showing the importance of political education, was that those countries which have the best developed system of politics stand highest among civilized nations. The negative answered by a *reductio ad absurdum*, and won the decision. Declarations were given by W. P. Tucker and H. V. Rudy. Essays by D. C. McDowell and Ross Long. Mr. Dobbs read a selection of "melting pathsos." Discussions by Mr. Hartley and J. Frost. The session was very interesting, but want of space prevents further comments. H. D.

HAMILTON HALL, October 5th.

There was a large attendance at the Society, although many were tardy. After a favorable report by the Board of Directors, and a ballot by the Society, the names of Frank Yeoman, John Riddell, C. M. Ginter, F. W. Ayers, T. A. Thackrey, G. H. Wheeler, G. S. Umbarger, and A. T. Ellsworth were placed on the roll. The first on the programme was a declamation by W. J. Yeoman. The speaker chose for his subject "A View of Life." Aside from some hesitating, it was well rendered. Messrs. John Riddell, C. P. Hartley, and R. Snyder were appointed Judges for the debate. F. M. Linscott opened the question, "Should immediate measures be taken for the reduction of the surplus?" The speaker argued that there was a necessity for the establishment of a larger number of educational institutions. Also in the construction of a large navy and of maintaining a larger army. Saml. Van Blarcom was the first speaker on the negative. The speaker tried to show how weak and feeble the Government would be without a surplus, setting forth the fact that the surplus was not now nearly equal to the public debt. Mr. Percy Leland was the second speaker on the affirmative. I. D. Parker was the second speaker on the negative. It may be said that both of these members did well, considering the fact that they were new members. The Judges cast their vote unanimously in favor of the negative. A very interesting and instructive essay was read by N. S. Pope. In this the author described a trip to Walla Walla, N. C., via Kansas City, St. Louis, and Chicago. Mr. L. Criner, the music committee, performed his duty by rendering a vocal selection. The last on the programme was the Hamilton *Recorder*, edited by S. I. Borton. The paper was somewhat lengthy, but was one of the best presented. The name of R. W. Newman was proposed for membership. Under the order of new business, considerable discussion was aroused in regard to purchasing an organ. The question of giving a special session was made a subject for discussion, but after some deliberation the motion was laid on the table. H. E. Moore being on the programme for extemporaneous speaking, stated briefly what the work of new members should be. A lengthy critic's report was received last. Adjournment. E. C. C.

SOCIETY HALL, September 27th.

The Alpha Beta Society was called to order by President Emma Secrest. Music, Messrs. Hutto and Smith, and the Misses Green. Devotion, Miss Martha Cottrell. Roll-call. Declamation, Miss Allie Crooks. May Harman, Bertha McNair, Maud Parker, R. J. Orr, J. F. Odle, and J. E. Taylor were initiated. Essay, Miss Nora Baxter. Debate, question, "Resolved, That natural ability without book knowledge is of more advantage than book knowledge without natural ability." Argued on the affirmative by Miss Bertha Kimball and E. C. Thayer; on the negative by Miss Mary Senn and G. L. Christensen. The Judges, Messrs. Dobbs, Armour, and Whaley, decided in favor of the affirmative. The *Gleaner* was presented by Miss Jeanetta Zimmerman. Recess. Music by the Society. Informal speeches, Miss Lillian St. John and G. L. Clothier, followed by a general discussion by other members of the Society. Miscellaneous business. The names of Charles Norman, David Gamble, and Elizabeth Hoyt were proposed for membership. Assignment of duties. Report of Critic. Reading of the minutes. Music, by W. W. Hutto, Miss Maud Parker, and Miss Julia Greene. Adjournment. G. L. C.

SOCIETY HALL, October 4th.

The Alpha Beta Society was called to order by Vice President Smith. Solo, W. W. Hutto; organist Maud Parker. V. Armour led in devotion. Roll-call. Elizabeth Hoyt, David Gamble, and C. Norman were initiated. Declamation, Grace Clark. Select reading, P. E. Westgate. Debate, "Resolved, That the United States will fall as ancient oriental nations have fallen." Argued on the affirmative by Sadie Moore and R. A. McIlvain; on the negative by Lockhart Harmon and E. E. Ensign. Judges, Maud Gardiner, Mary Senn, and C. Dorman, decided unanimously in favor of the affirmative. The *Gleaner* was presented by J. N. Harner. Recess. Duet, Delpha Hoop and Nellie McDonald; organist, Christine Corlett. Extemporaneous speaking. Miscellaneous business; report of committee on exhibition programme accepted. The names of Laura Newell, Hattie Paddelford, Maud Gardiner, Lillie Dial, Minnie Netz, Frances Thackrey, and Martha Campbell were proposed for membership. Committees were appointed to arrange for getting new copies of the constitution and by-laws, and to procure labels for books belonging to the Society. General criticisms. Assignment of duties. Reading of minutes. Instrumental music, Ella Hopkins. Adjournment. G. M. C.

CHEMICAL LABORATORY, October 4th.

The Scientific Club was called to order by President Graham. Minutes of last meeting were approved as published in the *INDUSTRIALIST*. The Secretary's Annual Report showed that nine regular meetings were held during the past year, at which the whole number of papers presented and topics discussed was thirty-nine, distributed under the following heads: Agriculture, three; Astronomy, two; Botany, four; Chemistry and Physics, seven; Domestic Economy and Sanitation, three; Entomology, three; Geology, two; Horticulture, two; Mechanics and Engineering, seven; Ornithology, one; miscellaneous, five.

Under the order of election of officers, a nominating committee, consisting of Messrs. Breese, Swingle, and Mason, was chosen, who reported the following ticket: For President, O. P. Hood; for Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Miss Abbie Marlatt; Board of Directors, Prof. J. D. Walters, Lieut. Morrison, and Prof. O. E. Olin.

The remainder of evening was occupied by Professor Hood in describing the new Edison Phonograph and giving examples of its work. Many intricate points were explained and illustrated. The curious fact was brought out that the diaphragm and needle point are not essential to the reproduction of sounds, but that any substance capable of receiving the vibration, as a piece of stiff paper, if a sharp corner be held so as to follow the threads of the cylinder, will give out the sound quite perfectly, though in greatly diminished volume.

The Club extended a vote of thanks to Prof. Hood for his entertaining, and adjourned. S. C. MASON, Sec.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Baker University has 320 students.

The *Beacon* is a new college paper established at Baker University.

The Washburn *Reporter* is set up and printed in its own printing office.

The Washington *Argo* has changed from a monthly to a semi-monthly.

The students of the Dickinson County High School have named their literary society the Canfield.

H. C. Ford, Superintendent of the Yates Center Schools, has been appointed Superintendent of the Government Schools at Osage Agency, Indian Territory, at a salary of \$1,800.

Superintendent J. H. Lee of Riley County is making arrangements to publish a small school bulletin as a means of communication between his office and the teachers and patrons.

The Waldo *Enterprise* has suspended for three months to allow the editor to teach school for that term. Thus it will be seen that the country editor in Kansas is a public institution of much more than ordinary value.

The report of the Industrial Department of the Kansas institution for the education of the Deaf and Dumb at Olathe for September shows that fifteen of the boys learn printing, twenty-two cabinet-making, and seventeen shoe-making.

Mrs. Frazier, wife of the late Chancellor Frazier, has been studying art in Europe for the past four years under noted French artists. She will open a studio in Milwaukee soon. One of her pictures gained a place in the salon.—*University Kansan*.

Ottawa University has discontinued its normal and business departments. Sixty-five new students are enrolled, a considerable advance over recent years. A new College building, to cost \$25,000, has been begun. Most of this amount is subscribed by citizens of Ottawa.

Prof. March, formerly of the State University, is studying philology and general literature at the University of Bonn, Germany. Mrs. March intends to spend the winter in the art studio of Prof. Benjamin Constant at Paris, the tutor of Prof. M. Simpson of the State University.

The Salina public schools have adopted a military organization. Each room has two companies with captains. The captains are required to report on the assembling of the pupils in the school. The military companies drill every day. The pupils are much interested, and the drill is an excellent means of securing proper discipline. The total enrollment in the schools is 1,086.—*Salina Democrat*.

J. W. D. Anderson, a last year's graduate of Baker University, is compiling a book entitled, "The Kansas Methodist Pulpit." It is to be a series of twenty-four sermons by the same number of Kansas Methodist preachers, and will no doubt be a book of great merit, as the contributors are among the foremost men of the State in the profession. Besides the reading matter, there will be a portrait of each contributor.

Superintendent J. R. Bickerdyke of Russell County wants the teacher to provide two auto-graph albums for his school, and as an incentive to good work in writing allow the pupils to write in the "school album" when they show decided improvement, and in the "teacher's album" when they write a first-class hand. No doubt such an album would become a source of interest to the school and a pleasure to the teacher.

The State University is planing to equip its engineering department with a "slojd shop." Prof. Blake intends to attach it to the engine house. He expects to put in about \$3,000 worth of heavy machinery, such as drills, lathes, and other machine tools. A regular machinist is to be employed, and will probably be engaged next week. This promises to become a valuable addition to the University, and is something greatly needed.

There bids fair to be some rivalry in this part of the State on account of the superabundance of Methodist institutions. Topeka Methodists—rich men, by the way—are at present very active in perfecting a scheme that has for its ultimate result the establishing of a Methodist college in that place. Although these men will undoubtedly found their

institution, it will in no degree conflict with Baker to Baker's detriment.—*Baker University Beacon*.

The Board of Regents of the State University were in session this week. After much routine work had been attended to, the Board took up the Chancellor matter, and at a late hour decided to continue the present arrangement, which gives satisfaction to Faculty and Students. W. C. Spangler, the resident Regent and Vice-Chancellor, understands the business necessities of the school thoroughly and shows great aptitude therefor, and Professor Snow is universally popular with students and Faculty. There will be no election of a Chancellor until the close of the college year.

There will be two county meetings of the teachers in Riley County this year—in December and March. For the remainder of the time the County is divided into six sections for separate association work. Each section is presided over by a County Vice-President who acts as Section President, and has all the work of his section in charge. The names of the sections and their respective Presidents are as follows: May Day, Wm. McIlwain; Randolph, L. S. Fry; Leonardville, W. J. Burtis; Riley, C. G. Swingle; Ogden, Samuel Thackrey; Manhattan, Miss Emma A. Allen. The meetings of each section will be held monthly, beginning in November.

The new building of Midland College of Atchison, under the auspices of the English Lutheran church, was formally dedicated October 1st. The Rev. J. M. Cromer of Kansas City offered the dedicatory prayer and the Rev. Dr. Conrad of Philadelphia delivered the dedicatory address. Letters were read from President Harrison, Postmaster General Wanamaker, Governor Thayer of Nebraska, Governor Larabee of Iowa, Governor Francis of Missouri, and Governor Humphrey of Kansas. An address was delivered by Senator Ingalls, with a response by the Rev. S. B. Barnitz of Des Moines. The formal ceremony of dedication was participated in by Dr. Detweiler of Omaha. The Rev. W. M. Sparr, President of the Kansas Synod, closed the exercises.

CULTIVATING A CHILD'S TASTE IN READING.

"Reading is to the mind what exercise is to the body," says Addison. "As by the one, health is preserved, strengthened, and invigorated; by the other, virtue (which is the health of the mind) is kept alive, cherished, and confirmed." And Dr. Johnson adds, "The foundation of knowledge must be laid by reading."

But there is reading and reading; there is reading that debilitates and debases the mind; as there is reading that strengthens and invigorates it. There is reading that forms the basis of knowledge, and there is reading that lessens the reader's desire for knowledge. The habit of reading is formed in childhood; and a child's taste for reading is formed in the right direction or in the wrong one while he is under the influence of his parents; and they are directly responsible for the shaping and cultivating of that taste.

A child ought to read books that are helpful to his growth in character and in knowledge; and a child ought to love to read these books. A child will love to read such books as his parents train, or permit, him to find pleasure in reading. It is the parent who settles this question—by action or by inaction. It is the child who reaps the consequences of his parents' fidelity or lack in this sphere.

Of course, it is not to be understood that a child is to read, and to love to read, only those books which add to his stock of knowledge, or which immediately tend to the improvement of his morals; for there is as legitimate a place for amusement, and for the lighter play of imagination, in a child's reading as there is for recreation and laughter in the sphere of his physical training. As one of the English fathers of poetry has told us,

"Books should to one of these four ends conduce,
For wisdom, piety, delight, or use;"

and that reading which conduces merely to "delight" for the time being, has its essential in the formation of a character that includes wisdom and piety and useful knowledge. But it is to be understood that no child is to be left to read only those books to which his untutored tastes naturally incline him; nor should he be made to read other books simply as a dry task. His taste for instructive books as well as for amusing ones should be so cultivated by the judicious and persistent endeavors of his parents that he will find enjoyment in the one class as truly as in the other.

A wise parent can train his children to an interest in any book in which they ought to be inter-

ested. He can cultivate in their minds such a taste for books of history, of biography, of travel, of popular science, and of other useful knowledge that they will find in their books a higher and more satisfying pleasure than is found by their companions in the exciting or delusive narrations of fiction and fancy. Illustrations of this possibility are to be seen on every side.

It is, however, by no means an easy matter, even though it be a simple one, for a parent to cultivate wisely the taste of his children in their reading. He must, to begin with, recognize the importance and magnitude of his work so far, and must give himself to it from the earlier years of his children until they are well established in the good habits he has aided them to form. He must know what books his children ought to read, and what books ought to be kept away from them. Then he must set himself to make the good books attractive to his children, while he resolutely shuts from them those books which are pernicious. All this takes time, and thought, and patience, and determination; but it is work that is remunerative beyond its extremest cost.—*Sunday School Times*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

TRADE SCHOOLS IN THE UNITED STATES.

TRADE schools have been, as yet, unable to enlist much public interest in this country. The reasons must be looked for in several directions. First, the public schools have a certain work to do; the chief purpose of the schools of a nation that builds its destiny upon the basis of universal suffrage must ever be the education of intelligent voters; they cannot be expected to give instruction in special tool manipulations. Second, the teachers and legislators who possess more than a primary education are classic scholars who, as a rule, can see but little good outside of their own alma mater. Third, there is but little real sympathy felt with the poor wage-workers. Few native Americans, outside of those engaged on the farm, are satisfied with the lot of the mechanic, and few are planning to teach their children a so-called trade. It is estimated from figures given in the last census that in the city of New York, out of the enormous sum of twenty-three millions of dollars paid annually to mechanics in the building trades, less than six millions go to those born in New York.

Yet, there is a growing necessity for such schools in our large towns. The ancient system of apprenticeship has decayed, and nothing has taken its place; and though it would be infinitely better for the boy, as well as for the country, if he could get a thorough intellectual and moral education simultaneously with the knowledge and skill of a trade,—an education such as the technical schools are trying to supply,—it is an actual advantage if he can get the bare trade instead of nothing at all. Any education is better than none.

In Europe, schools have long been in existence for the building trades, for workers in wood, metal, and leather, for weaving and dyeing, for furniture-makers, wood-carvers, watch-makers, brewers, etc. Some of these schools, like the Imperial Technical School at Moscow, and the schools at Crefeld and Chemnitz in Germany, at Verviers in Belgium, the trade schools in Paris, and the London Guilds School, are on a very large scale. In the United States, the Master Plumbers' Associations in some of the cities provide instruction for their intended employees. The Carriage-makers' Association has a school in New York for the young men employed in carriage building, and a number of private firms provide instruction for their employees. Trades are also taught to colored young men at Hampton, Va.; at Clark University, Atlanta, Ga.; at Central Tennessee College; to Indians at Carlisle Barracks, Pa.; and to young men in many asylums and reformatories. In all these schools, however, the trade instruction is combined with a more or less thorough course in language, mathematics, and the sciences, extending over one or more years; and though the results of this combination are excellent, there is still a large class of ambitious young men who, for lack of means and time, cannot avail themselves of the benefits offered.

To meet the wants of this class, trade schools, pure and simple, have been organized and experimented with in a few cities, and the results obtained are very satisfactory. On this plan, the New York Trade Schools have been conducted for at least eight years, and the Mechanical Trade School of the Builders' Exchange, Philadelphia, which is to be commenced this fall, will be conducted on the same plan. The New York school is a private institution. It teaches the following trades: Brick-laying, plastering, plumbing, carpentry, painting (three grades, namely, house, sign, and fresco), stove-cutting, blacksmithing, and tailoring. The average daily attendance is over four hundred, and

is growing faster than the necessary building be provided.

The school is conducted on the principle of teaching how work should be done in all its details, and learning the celerity required of a first-class mechanic, which is to be acquired at a real work afterwards. Skilled mechanics are employed as teachers, who show the pupils how the work should be done, and see that it is done properly, and who ascertain constantly not only what the pupil knows, but in what he is deficient. Progress under such tutorship is naturally rapid as compared with that in the workshop, where each employe is necessarily engaged in the work he can do best.

If the public school has previously done its full duty toward the poor boy who is obliged to take his university education in the trade school, there is nothing spoiled, but a great deal has been gained; and the graduate has a fair chance of becoming a useful citizen and an honor to his modest alma mater.—*Prof. Walters.*

THE STALK-FIELD DISEASES.

THE time of year is approaching when we may expect to hear of loss of cattle in stalk-fields, and we may expect to see the same variety of causes of death assigned as of old. The writer of this had occasion a little less than one year ago to make some observations upon the conditions and circumstances under which loss of cattle occurred in Blue Township, Pottawatomie County. He ventured to suggest, not the least dogmatically, that the cause of death, instead of being due to poor and indigestible feed and lack of water, might be the more acute one of indigestion caused by over eating of grain. But it was observed that there was no great distension from gas that would almost necessarily have been an attendant. This would probably have been fatal to that view.

Anything that will give light upon the cause of death will be welcomed; for only by an understanding of the real cause can there be hope that prevention or cure will be possible.

Dr. F. S. Billings of Nebraska claims to have found a specific organism, or so-called germ, in animals that die of the "corn-stalk" disease. He thinks to have shown conclusively that this organism is the cause of this disease, and has given the characteristics of the disease at some length, with suggestions for prevention.

Prof. Burrill of Illinois has found a disease of corn which destroys or seriously injures the plants attacked. This disease appears variously distributed over a field. Single stalks or hills are sometimes affected. At other times, the corn over a considerable patch is destroyed. Occasionally, a whole field is attacked. These investigators have thought that the germs of this corn disease might be the active agent in the disease among cattle. As late as the middle of August last, Dr. Burrill had failed to develop the disease in animals by inoculations of his corn disease. He says that the identity of the organism discovered by him in corn with that obtained by Dr. Billings from diseased animals remains to be proved. In speaking of these matters, I use the caution which is seemly in one of the laity. Perhaps I should not intrude within the charmed circle at all. But interest taken in the matter is the only excuse. Now, while this "germ theory" seems to be the most plausible explanation of the stalk-field disease, it is difficult to see why it should be more prevalent among cattle that graze the stalks standing in the field than among those that eat corn as fodder or as ensilage, if the germ is one that develops in the corn-stalks; unless perhaps its virulence is attained at the season of

ripening of the corn so that fodder and ensilage corn would have been cut. I have never heard of the trouble except among stock running on stalk-fields. With these, the disease is often swift and sure. It may be that the bacteria attack some other plants than the corn, and the eating of these plants may be the means by which the bacteria are introduced into the animal. This would seem to meet the objection raised to the stalks being the agent of infection. At any rate, we shall watch the developments in this line with great interest. If a means of preventing this loss to our live-stock interests shall be the outcome of the work, the people of the Western States will owe a debt to bacteriologists which they will find it difficult to pay.—*Prof. Failyer.*

INVENTIONS AND WAGES.

Some paper has started the silly question, "Do inventions decrease wages?" Certainly they do not. On the contrary, inventions increase wages, shorten the work day, and decrease prices. In fact, inventions constitute the only possible way by which labor can be emancipated from drudgery, long hours, and poor pay. Inventions are increasing every year, and wages are constantly advancing in all countries where they are utilized. Take calico as an example: There are persons now living who can remember when calico sold at 25 cents a yard. It now sells at 8 cents. This great reduction in prices was effected by inventions. In the meantime, wages have in no case fallen, but have advanced very greatly. A day's wages will buy as much calico as a week's wages would fifty years ago. Calico is selected as an example, but the same facts are true as regards other manufactures.

Any one, no matter whether a laborer, a loafer, or a capitalist, who talks against invention talks against one of the very greatest blessings that has been vouchsafed to the world, and it is astounding that any person can be found who is so ignorant or so rash as to condemn them.—*Scientific American.*

FRANCE'S ROADS.

Nowhere is the art of road-making and maintenance carried on to such perfection as in France, where the necessity of constant supervision and prompt repairs are fully appreciated. Her roads have a length of about 200,000 miles, of which more than 120,000 miles are macadamized. They have cost nearly \$600,000,000 for construction, and the sum of \$18,000,000 (or about three per cent of first cost) is annually spent for their maintenance. Until we are prepared to expend the necessary sums for solid construction and incessant maintenance, we cannot have good roads. With an area of 204,000 square miles and a population of 38,000,000 inhabitants, France has about one mile of road to every mile of its territory, and to every 190 inhabitants. Its roads have cost about \$3,000 for each square mile, and about \$18 for each inhabitant. Their maintenance costs annually \$90 for each square mile, and 48 cents for each inhabitant.

AMERICAN BEEF ABROAD.

The outside butchers away from London and Liverpool want to get the benefits of the live cattle from this country. The prejudice against American beef cattle is all gone, and the superior class of high-grade beef cattle we export are eagerly sought after at better prices than last year. The ships are all engaged for weeks ahead and crowded to their utmost capacity. Successful shipments have also been made to Germany, and the whole world will be our market for all the good beef cattle we can raise, but the scrubs are not wanted in any country. They will not pay to ship, and unless our farmers quit raising scrubs and raise only high grades the foreign countries will take the best and leave us the scrubs to eat at home.—*Western Agriculturist.*

Every man ought to have a scrap-book in his office in which to paste newspaper items and articles pertaining to the business in which he is engaged. Many a valuable suggestion is lost by failure or neglect to clip it from a paper when it is fresh at hand, and sometimes by neglecting to paste the item away when it is clipped. Many valuable technical or special books have been made up entirely of newspaper clippings.

KANSAS THRIFT.

The loan and trust companies of Kansas report that the farmers of that State are not only meeting their interest more promptly this fall than at any time during the past ten years, but that many of them are paying off their mortgages and entirely freeing themselves from debt. It is a remarkable fact that, with all of the depression which the agricultural interests of Kansas have suffered during the past three years, none of the loan and trust companies of that State have gone to the wall or have been compelled to suspend business. A more significant commentary upon the substantial character of securities in that State could not be desired.—*Kansas City Star.*

I have just returned from a short trip into the State of Kansas. I wish the readers of this letter could have been with me. They would have seen sights that would have delighted their souls. The rich, dark green corn-fields were to be seen on every side, and the size of a Kansas corn-field is something prodigious. Instead of the five, six, or ten-acre fields seen further east, there are many in Kansas of forty acres or more. No finer corn prospect was ever seen. As I looked out upon the fruitful fields so rich in their beauty, I did not wonder that Longfellow the poet, who had an eye for everything lovely in nature, used to say: "Corn is the most beautiful plant that springs from the bosom of Mother Earth." Were the grand poet and noble man yet living, and could he be permitted to settle the question as to the national flower, he would no doubt say, "let it be the tassel of the corn." I found the people of Kansas in buoyant spirits. They sowed and they have reaped and will gather. Providence has served them well. Some one has jocosely said that "all the Kansas people have to do now is to lie awake at night and think what they are going to buy with all the money they are going to get when they have marketed their wheat, corn, oats, barley, sugar cane, broom-corn, hogs, and cattle. But the truth is, that in Kansas for the previous seasons the crops have not been good, and so the Kansan of to-day will find ready use for all of his surplus.—*Cor. American Farm News.*

CO-OPERATIVE BUTTER-MAKING.

It is true that co-operative butter factories in New England are very successful. There are about two hundred of them, and we know of but two that have been unsuccessful to any great degree, and in these cases the trouble was poor management. The creamery that made the best record last year was the Ellington (Ct.) co-operative factory. Its average income per month was \$5,072.02. The average expenses per month were \$731.28. The average price received for butter during the whole year was 30.18c per pound gross, and the payments to patrons equaled 25.86c per pound. Thus the entire expenses were 4.32c per pound, including interest on the capital, insurance, repairs, reserve fund, etc. The creamery received during the year 1,331,347 spaces of cream raised in Cooley cans, and made 203,834 pounds of butter. It required an average of 6.51 spaces to make one pound of butter, and the payments per space of cream averaged 3.96c. The total sales were \$60,864.25. One or two other co-operative factories had larger sales last year, but none paid higher.—*New England Homestead.*

A NOVEL AND CHEAP ELEVATOR.

A Berlin inventor has devised a simple and inexpensive elevator for private dwellings, in place of the ordinary staircase, which may suggest to some inventor a better means of accomplishing the same object. The Berlin invention is on the same principle of the inclined railway, and the motive power is the city water which is applied in the cellar. Each flight has its separate chair, so that, for example, one can ascend from the first to the second story while another is on his way from the second to the third, or still another is descending from the fifth to the fourth. The chair being only of the width of the human body, leaves a free passage for any one who wishes to walk up or down instead of riding. It is set in motion by a simple pressure of one of its arms, and after it has been used it slides back to the bottom step, its descent being regulated in such a manner that the passenger is carried with entire safety. The motive power is, of course, more or less expensive, according to the cost of the water, this being, it is stated, at the rate of a little more than one-tenth of a cent only for each trip.—*Scientific American.*

FARM BETTER, NOT MORE.

The mistake most farmers make is in trying to cultivate too much land. If they would but realize that there is scarcely a limit to the productive capacity of an acre of land, they would not attempt to cultivate so much, but would do the same amount of work on half the number of acres and realize better results. When farmers learn the results of the "little farm well tilled" idea, the mortgages will rapidly disappear from the Kansas farms. One cannot successfully raise mortgages and sunflowers on the same land at the same time.—*Salina Republican.*

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 30 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology. Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frierer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory, with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$600.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitring machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms, with six machines, models, patterns, and cases; worth \$550.

Music Rooms, with four pianos, four organs, and other instruments; valued at \$1,500.

A Library, carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory, containing one hundred and fifty stands of arms (breach-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$800.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Shelton spends a day in Topeka this week.

Mr. McCreary visited Holton last week to attend the marriage of a sister.

Regent Hessin returned early this week from a hurried trip to Canada on legal business.

Nearly two hundred volumes in new binding were received on Thursday from the State Printer's office.

Mr. and Mrs. Breese enjoyed a brief visit this week from the former's father, Mr. R. B. Breese of Elmdale.

Prof. Kellerman lectured on last week Friday before the local grange at De Soto, Johnson Co. His subject was "Wheat Rust."

Secretary Graham gave an address before the Manhattan Grange on Saturday last, upon the theme, "Twenty Years in Kansas."

S. Sisson, student in 1883-4, and since that time the efficient herdsman of our Farm Department, has gone to Toronto to study veterinary surgery.

A refreshing rain on Tuesday night, Wednesday, and Thursday has turned dust into mud; but at the same time has given thrift to growing wheat, which adds interest to farming just now.

An improvement in the order of morning chapel was inaugurated this week by requiring all belated ones to occupy back seats, while the exercises begin promptly at the close of bell-ringing.

S. I. Wilkin, H. B. Gilstrap, and H. V. Rudy represent the College Young Men's Christian Association in the State Convention at Topeka, this week. A number of other students spend two days there.

Nine Third-years, constituting the second division in rhetorical work, appeared in public yesterday for the first time, with declamations which were well received by the body of students and numerous visitors.

Inquiries for the earlier catalogues and reports of the College are frequently made by other institutions, public libraries, and distant friends of the College to whom it would be a pleasure and a profit to send them. The College supply is entirely exhausted, and it is requested that those of our readers and others who have such catalogues and reports and are willing to spare them for the benefit the College will get from their exchange for like publications elsewhere, will notify the President to this effect.

Hugh Mattoon, a student of the First-year Class, while playing with his fellow boarders at Mr. Jonathan Davies's on Tuesday evening, fell in such a way as to throw the weight of his body upon his head and neck, and for a few moments to render him unconscious. He soon rallied, however, and with careful nursing has so far recovered from the bruises and lameness as to be at his classes again. No blame can be attached to anyone for the accident, which might have been fatal; but it should put all on guard in the everyday sports against careless acts of exertion.

All interested in agricultural matters will find just now such a display of results in experiments as can rarely be found together, in the various departments of the Station. In the loft of the implement shed near the farm barn are some fifty varieties of corn in bins, with labels showing the name and yield of each. In the gallery of the Museum are a multitude of specimens of corn showing variations by crossing varieties. At Horticultural Hall are hundreds of varieties of potatoes plainly labeled for comparison, and at the Chemical Laboratory are results of comparisons among some two hundred varieties of sorghum. Besides these special exhibitions there are as good specimens of stock as the State affords, fine collections in the Museums, interesting work at the shops and workrooms, beautiful plants in the greenhouse, and a

noble body of students. Such a display of interesting growth is not to be seen at even the State Fair.

BOARD MEETING.

The meeting of the Board of Regents, been called by agreement upon the 15th of October instead of the 8th, all were present except Regent Caraway. The usual routine of business was completed, including the approval of vouchers for expenditures for the months of July, August, and September, and the inspection of the Secretary's books.

Regent Wheeler was appointed a delegate to the Farmers' Congress at Montgomery, Ala., November 13th to 16th.

Two cases of delinquencies upon contract for lands were reported by the Secretary: resolutions of forfeiture were entered, and the Secretary was directed to notify the parties of such forfeiture beyond renewal.

Upon suggestions contained in letters from Senator Plumb, presented to the Board, Professor Shelton was authorized to make a visit to the Western part of the State, for investigation with reference to a report upon the possibility of growing certain grasses and forage plants without irrigation.

The Council of the Experiment Station was authorized to issue Bulletins as deemed wise; and its estimates for current expenses during the quarter were approved.

A resolution that the Secretary of War be requested to extend the detail of Lieut. Morrison for services at this College for one year was passed unanimously.

A Committee consisting of Regents Hessin and Fairchild was appointed to draft resolutions of respect for the memory of Gov. Jno. A. Martin.

The evening of the 15th was given to a joint session of the Board and Faculty, in which each member of the Faculty reported on the condition of his Department, and the needs felt in the way of apparatus and equipment. Expenditures for the following purposes were authorized:—

For additional chairs.....	\$ 25.00
For corn shelter in Farm Department.....	40.00
For minerals, special appropriation, \$300.00 of which shall be paid next July, according to terms of appropriation.....	700.00
For Horticultural Department, student's lamp and supplies.....	35.00
For Botanical Department, glass-ware and tables.....	3.00
For the Library, binders.....	10.00
Batteries for bells and anemometer.....	8.00
For Kitchen Laboratory, heat thermometers.....	40.00
For Sewing Department, sewing machine and table.....	20.00
For Mechanical Department, one car load of lumber.....	20.00
For Musical Department, technician and stands.....	20.00
Photographs for illustration in history.....	20.00
For the Military Department, 40 blouses and caps.....	20.00

The Farm Department was authorized to distribute at discretion sundry seeds of forage and other plants, with the view to testing their growth in other parts of the State.

The Regents spent a portion of the morning of the 16th in looking over the work of the various departments of the Experiment Station, especially the varieties of corn and potatoes raised this year, and adjourned to meet at the call of the Secretary, not later than the first Tuesday of January.

GRADUATES AND FORMER STUDENTS.

Hattie L. Gale, '89, is teaching at Lake Worth, Florida.

A. Walters, '88, is teaching at Vine Creek, Ottawa County.

J. R. Harrison, '88, was a caller on Monday, an off-day on his mail route.

Ina M. Turner, '89, is again at work as compositor for the "Bakers" in Topeka.

C. E. Friend, '88, has taken charge of Logan & Friend's lumber yard at Ontario, Kan.

J. Grant, Third-year in 1887, is in business with his father at Ellinwood, Barton County.

G. F. Guy, student in 1882-3, is candidate on the Democratic ticket for Clerk of Riley County.

W. R. Browning, '89, is on a Union Pacific Railway surveying corps now at work at Bear River Canon, Utah.

R. U. Waldraven, '89, writes from Parallel with a view to having the history of his class printed in pamphlet form.

R. A. Clark, Second-year in 1888-9, is devoting his time to music in the Oberlin Conservatory, and expresses satisfaction in his choice.

John J. Copley, Third-year in 1880-1, now a teacher among the Omaha Indians, eighty miles up the river from Omaha, called to see old friends at the College on Tuesday. Mr. Copley assisted in the chapel exercises.

COLLEGE SOCIETIES.

Scientific Club.—President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, C. W. Pape. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. F. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, October 4th.

Ionians were called to order by President Waugh. After singing "Old Hundred," the Society joined in repeating the Lord's Prayer. Roll-call was followed by the initiation of Misses Hederstrom, Barr, and Kunkle. The programme was opened by music, a piccolo solo, by Fannie Waugh. Hattie McConnell then read a piece entitled "Girls' Letters." The Society listened to a comic declamation, "Almost as Good as New," by Julia Pearce. The *Oracle* was presented by Miss Harrington. "Making of Statuary," and two poems, entitled, "Parody on the Charge of the Light Brigade," and "Who," were among the interesting features. Under the head of new business, the Society ordered the Board of Directors to see about getting Constitutions printed, also to confer with the Hamilton Committee about getting an organ. The names of Mattie and Addie Vale were proposed to the Society. The next in order was the assignment of duties, followed by report of Critic, and reading of minutes, after which the Society adjourned. S. E. H.

SOCIETY HALL, October 11th.

The Ionian Society was called to order by President Waugh. After singing "Nearer My God to Thee," the Society joined in repeating the Lord's Prayer. Roll-call was followed by the initiation of Addie and Nattie Vale. The first on the programme was instrumental music by Mamie Houghton. A select reading by Phoebe Turner was followed by a declamation, entitled "Little Blossom," by Kate Pierce. The *Oracle* was then read by Maude Whitney. The question for debate, "Resolved, That gentlemen visitors should be welcomed to the Society," was argued on the affirmative by Effie Gilstrap and Alice Vail; on the negative by Doris Kinney and Lottie Short. The Judges, Misses Houghton, Whitney, and Hall, decided two to one in favor of the negative. A vote of the Society was taken, and showed a majority of one in favor of the affirmative. The programme closed with a duet by Alice Vail and Doris Kinney, Julia Pearce at the organ. Under the head of unfinished business, the report of the Board of Directors, concerning the purchase of an organ, was accepted. Effie Gilstrap gave her report on getting a Constitution printed. The report was accepted, the Committee discharged, and Miss Pearce appointed as a new Committee. The names of Dora Skinner, Minnie Shaffer, Dora Thompson, Clara Pender, and Lena and Maggie Blythe were proposed. The Society decided to take a holiday next Friday and go on a nutting expedition. Assignment of duties, report of Critic, and reading of minutes. The rules were suspended, and the Society returned to the order of new business. It was decided to call a special session Wednesday morning at eight o'clock to hear the report of committees on nutting expedition. Roll-call with quotations. Adjournment. S. E. H.

SOCIETY HALL, October 11th.

The Alpha Beta Society was called to order by President Secrest. Music, quartette, Delpha Hoop and Callie Conwell, and Messrs. Lea and Westgate. Christine Corlett led in devotion. Roll-call. The following persons were then initiated: Maud Gardiner, Hattie Paddelord, Lillie Dial, Mamie Netz, Nora Newell, and Fannie Thackrey. May Secrest then read a selection, entitled "The Hunter's Vision." F. E. Way presented an essay on "Silent Influences," which contained many excellent thoughts. Next was the debate, question, "Resolved, That every one should obey the dictation of his own conscience." Affirmative, V. Armour and Elizabeth Edwards; negative, Delpha Hoop and R. S. Reed. Judges, Jennie Greene, Martha Cottrell, and Lillian St. John, decided unanimously in favor of the negative. *Gleaner* read by Mr. Lea. Recession of five minutes, followed by congregational singing and extemporaneous speaking, in which most of the Society took a part. Reports of committees. Closed with singing by Martha and Mary Cottrell.

HAMILTON HALL, October 12th.

The hall was well filled when Pres. Van Zile called the Society to order. R. W. Newman and F. W. Ayres were elected members of the Society by a unanimous vote. "Does the glory of the Rebellion exceed that of the Revolution?" was the question for debate. H. B. Gilstrap opened the question by relating some history of the wars. He argued that from a military standpoint the Rebellion was the more glorious because victory was won under greater difficulties; more glorious from a political standpoint because it showed that the Government was more than a loose confederation of States. G. W. Wildin argued that the people of the Revolution were only fighting to free slaves, while those of the Rebellion were fighting for their homes and their country. After other arguments, Mr. Wildin gave place to U. G. Balderston, the second speaker on the affirmative. G. L. Melton was the second speaker on the negative. H. B. Gilstrap closed the debate by stating that the Rebellion was more glorious because it freed a race from an inhuman slavery against relieving a nation from political oppression. G. W. Wildin closed the debate by refuting all arguments produced by his opponents. The Judges, F. A. Campbell, H. E. Moore, and T. D. Hogbin, decided in favor of the negative. After recess, F. A. Campbell and his singing class favored the Society with music. C. H. Manly read an essay, entitled "Books." This essay was both instructive and amusing. G. T. Morrison read an extract from Watson. A. F. Cranston had for the subject of his discussion, "Earthquakes." The three motions seen in earthquakes were spoken of: the circular motion, the vertical motion, and the undulating motion. H. C. Cobb, in his discussion described the school system of the Indian Territory. The names of F. Speer, E. J. Paris, J. A. Rokes, J. T. Coleman, and G. L. Gilbert were proposed to the Society. After a somewhat lengthy report by the Critic, the Society adjourned. C. E. C.

SOCIETY HALL, October 12th.

The work of the evening began with the admission of J. A. Robertson, Ed. Webster, and F. C. Holcomb into the Society. Discussion of the question, "That a College education unites one for successfully engaging in political life," followed. The affirmative, argued by J. Davis and J. E. Dorman, maintained that a college training, being a work in itself, leaves no time for study of politics, past or current, and that an average graduate knows less about the condition of the country than he who reads only the papers of his day. The negative, argued by T. C. Davis and C. J. Dobbs, declared any well-educated person more capable of judging matters which might come into issue, and, as a consequence, better fitted for political life. The negative gained the decision of the Society. Declamations, R. D. Brown and E. W. Reed. Essays, K. C. Davis and S. A. Waters. The Music Committee was D. H. Otis. He was assisted by A. A. Gist and T. C. Davis. The *Reporter*, edited and read by A. A. Gist, was a good sample of what effort can do. Everyone was pleased with it. Discussions by G. C. Gentes, C. W. Pape, and P. B. Scott. Mr. Gentes' discussion was of the Krupp manufacturing, and was very interesting. Messrs. Pape and Scott both presented good discussions. Under the business part of the programme, a motion was made authorizing a committee to have printed a new edition of the Constitution and By-Laws of the Society. The date of the Special Session was fixed for November 23rd. A programme for that occasion, which we hope will prove interesting, has been selected, and the members are at work on their parts assigned. H. D.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The next teachers' examination for county certificates will be held October 26th.

Prof. J. H. Canfield has been away this week arranging for the next meeting of the National Educational Association. In the meantime, his classes are busy delving in the dusty recesses of the library.—*University Kansan*.

County uniformity of text-books was carried this year in the following named counties: Seward, Grant, Kearney, Harvey, McPherson, Sedgwick, Gove, Logan, Marshall, Lincoln, Anderson, Ottawa, and Reno.—*School Journal*.

The total amount received by Mrs. Jennie M. Ward of Ottawa for the Mount Vernon fund was \$1,073.19. Of this, \$1,000 was paid to the Mount Vernon Ladies' Association, and the remainder was expended in printing, stationary, etc.

Seventeen microscopes are in constant use in the structural botany class, which, by the way, is a pretty good-sized one, numbering 28. It is divided into two sections, one working from 10 to 12, and the other from 12 to 1.—*University Kansan*.

A recent graduate in Natural History Department of the State University, W. H. Brown, has been appointed "naturalist in charge" of the expedition to South Africa. He goes with the Eclipse Expedition, but has charge of all natural history collections, etc. He intended to sail on the U. S. war ship Pensacola on the 7th of this month.—*University Kansan*.

Governor Humphrey has received a letter from Superintendent S. T. Walker, of the Deaf and Dumb Institution at Olathe, stating that one member of the graduating class of last June, Mr. Monroe Ingram, has been appointed by the Superintendent of the Missouri institution for the education of the deaf and dumb as teacher of the colored department.—*Kansas Star*.

The *Kansas Star*, the organ for the State Deaf and Dumb Institution at Olathe, reports the changes in their Faculty during the last three months as follows: "The articulation teacher, Miss Scallon, who had for about seven years been a teacher here, was married to Mr. Herman, a lawyer of this city. Mr. E. P. Gale accepted an offer of a higher salary to take a place in the corps of teachers in the Maryland Institution for the education of the deaf located at Fredrick City. Mr. Gale had been with us for four years. Mr. F. W. Metcalf accepted a call to the charge of the young school for the deaf at Salt Lake City, married Miss Crandall, the teacher, and has settled down in Mormondom. Miss Egleston, for four years teacher in art, and penmanship resigned for a cause for which we forgive her though very sorry to lose her. The oft repeated quotation, "Our loss is his gain," is applicable. Miss Effie Johnston was the next to leave us, and is now engaged as teacher in the Philadelphia Institution for the education of the deaf. Miss Johnston had been here for about seven years. Miss Ida Williams, for three years supervisor of the girls, was married during the summer to Mr. Sprague, one of our teachers. Besides the vacancies caused by the above changes, there were yet to be filled the vacancies caused by the death of Supt. Walker's brother last February and the resignation of Miss Franklin. The new teacher of the first class is Mr. C. L. Zorbaugh, of Council Bluffs, Iowa, who is the son of deaf parents. His father has himself for years been a teacher of the deaf. Mr. Zorbaugh is a graduate of Parsons College, Iowa, and has for two years been a teacher in the Omaha Institution. Mr. C. R. Watson of Vancouver, Wash., will have charge of the second class. Mr. Watson attended Albert College, Montreal, and has grown up with deaf mutes, his father having been a teacher for years and is now Supt. of the Washington School. Mr. E. C. Harah will have charge of the fifth class, and also be the instructor of the boys in gymnastics. Mr. Harah is a deaf man who attended school at the Philadelphia Institution, and lately completed the course at the National Deaf Mute College, Washington, D. C. Miss Cora Livingston, from Needham, Mass., takes Miss Egleston's place as teacher of penmanship and art. Miss Livingston is a graduate of a Massachusetts high school and of the Normal Art School of Boston. Mrs. Rose Keeler of New York City has charge of the articulation classes and the girls'

calisthenic class in the place of Miss Scallon. Mrs. Keeler is a graduate of the Candor (N. Y.) Academy, and has been engaged for several years with her sister in teaching a private articulation school in New York City. Miss Mae Stout, who has charge of one of the primary classes, is a teacher in the public schools of Illinois, and being a sister of the late John M. Stout, of national fame, is quite familiar with the sign language. Miss Mamie Bowles, who has charge of the 14th class, has grown up in the society of deaf mutes, and "speaks" the sign language most fluently. Miss Bowles has for the past four years been a student at Washburn College, Topeka and Wellesley College, Mass. Miss Cora Johnston, who filled the place of Visitors' Guide and office assistant last year, has assumed the duties of Girls' Supervisor." It must require a great deal of work and judgment to superintend such a complex organization.

PHOTOGRAPHING MANUSCRIPT COPY.

The publishers of the "Century Dictionary" deem it necessary to preserve the great mass of manuscript copy which has been made. If it were to be destroyed it might be impossible, through death or otherwise, to consult the expert writer whose opinions are embodied. It was proposed to insure the manuscript for \$150,000, but money alone could not replace the loss. Finally, some one suggested photographing them, and this was successfully done. Each sheet, which is of brown paper, is eight by twelve inches, but when photographed it is only one and three-quarters by two and one-quarter inches, and every letter is as legible as in the original, when enlarged by an ordinary magnifying glass. Thus it will be seen that the bulk of the matter has been reduced nearly one-fourth in size, so that the entire twenty-five thousand sheets can be stored away in a bureau drawer. The expense of all this work will not exceed three thousand dollars, and the copy is made practically as safe as it possibly could be.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses. Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$1.00 to \$200 a year.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's practice in an industrial art; and variation from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope, but fuller explanations are found in the Annual Catalogue.

FIRST YEAR.

Fall Term: Arithmetic, English Analysis, Geometrical Drawing.
Winter Term: Book-keeping, English Structure, United States History, Free-hand Drawing three times a week, Industrial.
Spring Term: Algebra, English Composition, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

Fall Term: Algebra completed, Elementary Chemistry, Horticulture, Industrial.
Winter Term: Geometry, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).
Spring Term: Geometry completed, Projection Drawing, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

Fall Term: Trigonometry and Surveying, Anatomy and Physiology, General History, Industrial (Farm and Garden).
Winter Term: Mechanics, Agricultural Chemistry, Rhetoric, Industrial.
Spring Term: Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week, Industrial.

FOURTH YEAR.

Fall Term: Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.
Winter Term: Logic, Deductive and Inductive, Zoology and Veterinary Science, Structural Botany, Industrial.
Spring Term: Geology, United States Constitution, Political Economy, Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:50 A. M. to 1 P. M., as shown under "Class Hours." Class rhetorical exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays, at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company, and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

MANHATTAN ADVERTISEMENTS.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

LESLIE H. SMITH, Boots and Shoes, 302 Poyntz Avenue, first door west of Stingley & Huntress. A full line of Rubber foot wear of the best quality at the lowest prices. Mens' all Solid Leather Dress Shoes, \$1.65. Ladies' Fine Dongola Button Shoes, \$2.00. Reliable goods at low prices.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices. —"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

HELPFULNESS OF EXAMINATIONS.

IT is perhaps natural to dread examinations. One shrinks from the feeling that he is tested for fitness in any capacity, preferring that his fitness be taken as a matter of course. And yet, if he gives a carpenter an order for a piece of fine workmanship, he expects and desires him to apply the rule and the square many times during his progress. If one makes an intricate machine to perform any important work, he tests it often and in all ways for fear of possible failure on completion. If one submits himself to training for feats of strength or dexterity, he desires frequent and severe tests to show him the amount and kind of advancement he is making.

The analogy holds good in mental acquirement. If we make no mistakes in training the mind to be an effective instrument, we must apply searching tests of right growth, just as we apply tests to material progress. To fail to do so is to run the risk of abnormal growth, wasted energy, or partial failure.

It is not fair to either pupil or teacher to defer examination till the end of the course of study. The pupil may get only half truths, follow erroneous lines, or reach false conclusions; while the teacher can often have but a general knowledge of the pupil, and so cannot know how best to assist him. Of course, every-day class-room work is a test, but where, by reason of large classes, this is insufficient, regular examinations are a help to both teacher and pupil.

In an experience of twenty years, I have found examinations of great use, both in directing my efforts, and in securing in the school good standards of scholarship. And I have found them discouraging to those only who are trying to push themselves on faster than their preparation or their natural capacity will permit.

If examinations are made real and fair tests of required ability, it is unwise for one whose object is to educate himself, to wish to avoid them. The earnest student will certainly find it helpful to measure himself occasionally by some standard of growth.—*Prof. Olin.*

THERMOMETERS IN THE KITCHEN.

WE hear a great deal about the "luck" some people have in their cooking. Baking especially is often considered dependent upon that vague and fickle element, and all kinds of failure in the food taken from the oven is attributed to the "poor luck" of the cook. Many will say, "I followed the recipe exactly," or, "I made my cake today just as I did yesterday; yet one is good, the other very poor." The truth is, very few cooks make articles of food exactly alike twice in succession. If the ingredients are the same, and are combined alike, the heat into which they are put to be cooked is very likely to vary greatly from one time to another. Much of the "good luck" of many cooks comes from ability to judge of temperature; and when we learn that it is much easier to have our temperature always right than to guess at it, we shall insist upon thermometers for our ovens, and depend upon them for proper degree of heat.

Butter-makers here come to the point where they consider the thermometer essential in preparing the cream for the churn. The woman who formerly churned three hours on a cold morning has found that by using her thermometer to test the cream she can apply heat, and raise the cream to about sixty degrees before she begins to churn; and, saving time, strength, and temper, find her butter even better in the end than by commencing to churn when the cream is too cold. Exact testing prevents the spoiling of the cream by the appli-

cation of too much heat. With baking, the same principle holds good. The directions in the cook-books, good as they are, are very indefinite. For bread, we are told to "put it into an oven so hot the hand cannot be held in it more than the time it takes to count twenty." We are further told to let our bread become as brown as we wish it by the time it has been in fifteen minutes. No two hands can endure the same amount of heat. A definite direction would say, put the bread into an oven at 400°; during the first ten minutes cool it gradually down to 325°, then hold the heat between that and 300° until the bread is done,—giving the time for baking a loaf of certain size. A very little experience will teach the cook how long loaves of the size and shape she likes to make must be baked.

The same holds true of all food cooked in an oven. There is much difference between the heat required for a cake and that needed for a pie or a pan of biscuits; and as much art is required in baking as in making.

We roast meats in our stove ovens. While it requires only a temperature of from 140° to 170° to perfectly cook the fiber of the meat, in order to cook a roast properly the outside must be seared over so that the juices will not escape. The heat must be sufficient to sear the outer surface, when the oven may cool down and the remainder of the cooking be done slowly. The essential stove heat, however, is at first, and only with a thermometer can the cook know that her oven is right, and avoid either the scorched roast, or the dry, juiceless meat. There is much need in cooking for exact recipes, and for exact measurements, but there is quite as much need for exact heat.—*Mrs. Kedzie.*

IMPROVEMENT OF THE DISTRICT SCHOOL.

IT seems noticeable from year to year that the classes entering college show better preparation for their work. The grade of the entrance examinations has been gradually raised, and the classes have kept fully up to it. This is an indication that the district schools are doing better work; it is more than an indication: it is a positive proof that the provision of the State for the training of teachers through the various schools of high grade and through the county institutes is producing the desired result. It gives emphasis to the thought that no educational reform is lasting or complete that does not provide for reaching the school-rooms of the country districts. We are so bound together that improvement must be reciprocal; we must advance all along the line, or we make no real progress. We cannot build up colleges and universities until we have built up schools and scholars on which to found them. No scheme can be devised short of overthrowing the public school system, that will make the district school less important. And this is why, from the schools above, a kindly pressure is continually brought to bear upon them, urging to the best quality of work that their opportunities and resources will permit.

But these schools are not to be considered merely as trainers for other schools. Their work is complete in itself, and must always face the practical world; and that world in some way or other will manage to test every bit of work turned out, and pass judgment upon it. So from all sides this pressure for good work is urged, and the district teacher can in no way shift the responsibility that is laid upon him. But he can know that every advance step he takes in thoroughness or in methods improves the world around him and pushes the high school and the college farther on; and he

may know also that in no other place will the effects of good or poor work be so far reaching.

A community is not quite so quick to commend as to condemn, but it usually arrives at full appreciation of devoted effort. Even the grumbler knows that the district teacher must use more judgment and executive ability than are necessary in a mercantile establishment; while society in general jogs on much more contentedly to know that all over the country the school-houses are filled again, and men and women better prepared than ever before stand in their places to mould individuality and life force into more useful and enduring forms.—*Prof. Olin.*

EXPLOSIVES AS PEACEFUL FORCES.

The importance of explosives to modern civilized life in times of peace is hardly realized. Originating with the discovery of gunpowder, at a period so ancient that it is lost in obscurity, the use of explosives was at first confined to war, in which they quickly replaced all other means of attack and defence. That discovery revolutionized war, and hence the march of progress has continued until it is safe to predict that in the near future the monster will perish through the sheer impossibility of withstanding the havoc which explosives deal. Peace finally will reign universally, because men can no longer fight. The cost of war will banish war.

Alongside of these warlike innovations, changes no less real, and involving even more momentous results, have come into modern life through the use of explosives, peaceable, it is true, but no less far-reaching because silent and unnoticed. How much coal and iron could have been lifted from the bowels of the mountains had there been no gunpowder? When would the Hoosac Tunnel been made had there been no nitro-glycerine? The engineering skill that can carry a railroad winding around the side of a mountain peak, belting the solid rock with band above band of rigid steel until a passage is carved for the engine across the backbone of the continent, manifests marvelous wisdom in planning and the highest skill in executing. But lacking high explosives, these astonishing creations were fancy's nightmare, or the sayings of a disordered brain; the rocks would have defied the carver's touch. Only these have sufficed to rend the solid rock and open the safe passage for the floating palace where erst was seething foam.

Truly peace has its victories as well as war. Dynamite and its congeners have proved its efficient weapons, and prosperity has hung as truly upon the products of the investigator's laboratory as upon the farmer's broad acres or the movements of the marts of trade.—*The Chatauquan.*

HORSES GET TOO MUCH HAY.

When a boy on a farm, I remember it was a standing rule to rake down a little hay into the horses' rack every time anyone went into the stable. The result was the horses would keep their grinders going nearly all the time, and become pot-bellied, unsightly animals. Horses fed in this way become mere machines, or hay-cutters; the nutrition of the hay is not assimilated, and a large portion of it is wasted. By such stuffing, every organ in the body is interfered with, and when put on the road or to work on the farm a horse so fed cannot move with any comfort until relieved of the superabundance of feed. The disease known as heaves is generally due to over-driving when the stomach is full of hay. Bulk in feeding is necessary, but when the food is nearly all bulk an extreme has been reached, and it is time to change. Hay should be fed with as much care as grain is fed. Different horses require different quantities, and in feeding a new horse it becomes a matter of experiment until his wants are ascertained.—*Colman's Rural World.*

A SECRET WELL KEPT.

Probably the only process which has been kept inviolate, and for ages openly defied the world of science, is the iron trade of Russia. The secret of making Russian sheet iron is owned by the Government, and is such an immense monopoly that it is currently supposed to defray the entire expenses of the Government. The works constitute an entire city, isolated and fortified against the rest of the world. When a workman enters the service he bids a last farewell to his family and friends, and is practically lost to the rest of the world. He is never heard of afterwards, and whether he lives or

dies, all trace of him is forever lost. There have been several desperate attempts made to steal or betray the secret, but in every instance it has resulted in the death of the would-be traitor. In one case a letter attached to a kite, which was allowed to escape, was picked up by some peasants, and, despite their protestations that they could not read, they were at once put to death by the guards to whom they delivered the letter, and it was afterwards decreed that the guards themselves should pass the remainder of their days within the works. The wonderful properties of this iron are so well known that it is unnecessary to enlarge upon them.

TEACH CHILDREN NEATNESS.

It is not easy to teach neatness to grown men and women; but it is possible to infuse into children a horror of the anti-social practice which helps a great deal to disfigure and vulgarize our cities, and especially this city, of throwing down refuse of whatever nature—peanut shells, bits of paper, ends of cigarettes and cigars, old shoes, hats, ashes, saliva, or other excretions—in places frequented by or seen by one's fellow-citizens, such as streets, roads, lanes, sidewalks, public stairways, etc.

Our indifference to this practice, which appears to be the result of long familiarity, is incomprehensible to foreigners. It disappeared from European countries completely fully one hundred years ago. It is now found nowhere in the Eastern hemisphere except in Turkish or other Mussuman towns and cities, and is looked upon as the sure sign of a low civilization. It is considered in every European city a greivous offense against a man's neighbors to make any public display of offal, or to sit down quietly in the presence of filth or rubbish of any description.

A horror of it might be taught to every child in the public schools by an average teacher. To instill it should be one of the teacher's first duties, for it must be remembered that the chief observable superiority of the civilized man over the savage lies in the greater cleanliness of his person and dwelling.

No child should leave the public schools without having a dread of refuse ground into him. He should be taught to hate the sight of unswept streets or sidewalks, of saliva-stained marble or granite, of ashes and refuse of every description, and especially of bits of newspapers and ends of cigars, as signs of gross selfishness and a low social tone.—*The Nation.*

STATES SHOULD PREVENT TRUSTS.

I believe these trusts and combinations are against public policy, and should be declared null and void. It is difficult to deal with them by legislation, but yet it is the duty of State Legislatures to pass proper laws to prevent these combinations. When corporations engaged in a particular business combine together with a view to prevent competition and to advance prices on the necessities of life, they become the enemy of society, and should be dealt with with a bold, strong hand.—*Senator Sherman.*

The funeral of Bishop Vail, at Topeka, was a tender and touching testimonial to the memory of a man who devoted his whole life to others. The world, with all of its selfishness and greed, and its propensity to measure success by material aggrandizement, still bows its head in deepest reverence at the graves of those who seek not themselves, but who fulfill the highest mission of humanity in those noble sacrifices which are offered for the amelioration of the race, and which lift men and women to higher and better planes of thought and action.—*Kansas City Star.*

Money has its value in the world, but it is only a subordinate value at best. Money never commands the highest service. There are always men—and women too—who would not turn aside from the work of their lives, or change the direction of that work, for a million dollars an hour. Many good things can be bought with money; but there are better things that no money could buy. The best things in the universe are always above cash price.—*Sunday School Times.*

Intelligent farmers realize the importance of useful machinery, and are striving to keep pace with the times. They are getting every kind of machinery that will lessen labor and meet with better success than when work was done by hand. One man can now do the work which otherwise took two, three, and sometimes four men.—*Cor. American Farm News.*

KANSAS THRIFT.

Smith Center is to have water-works immediately. The material is on the road.

The Atchita sugar works have sent 100 barrels of new sugar to a Topeka wholesale house.

Topeka is to have a brass foundry, established by old residents, who will also manufacture a number of articles on which they have patents.

J. P. Miller of Marysville says he has a grape vine that has ripened three crops of grapes this year, and that a fourth crop is more than half grown.

Pittsburg last year mined \$26,000,000 worth of coal and \$27,000,000 worth of lead. Kansas is wonderfully rich in minerals, and big manufacturing cities are in embryo.

Fred Houghton will ship two carloads of horses soon. He expects to take these to Boston. This will make about 800 head he has bought in this county this season, and represents about seventy thousand dollars of solid cash distributed among the farmers of Riley County for horses in one season.—*Manhattan Republic.*

Information has been received from the Paris Exposition that the State of Kansas was awarded a gold medal for the best agricultural report exhibited. A silver medal was awarded to a publication of the labor department of Kansas, and "mention honorable" was awarded to the Conway Springs and Douglas Sugar Companies for their sorghum sugar.

A Salina man, A. G. Emery, has invented a machine of peculiar value to Western Kansas. It is a revolving hoe for pulverizing the ground to a great depth. Where the ground has been plowed in midsummer this rotary machine will pass over, demolishing the weeds and hoeing up the surface as can be done by no other machine now in use. The machine will be put on the market next spring for the first time, a patent having been secured for it. It is likely to prove of immense benefit to agriculture on the plains.

Our State, a new eight-page weekly paper issued at Topeka, is thus ably defended by its editor, A. G. Stacey, and the first number well sustains the expectation raised: "The question has often been asked, 'what are the purposes and aims of this new paper?' The principal aim will be to keep it from forming another mound in the Topeka newspaper graveyard. The purpose is to make it a financial success. To accomplish these two ends, the aim will be to make a weekly magazine, in which will be found the choicest political and literary matter by the best writers in Kansas. There are many good papers in the State, but none filling this particular field. If it is possible to elbow a way to solid ground, *Our State* will do so. An important thing for all readers of this number is, that all subscriptions must be accompanied by the cash, as no paper will be sent out unless the sum of \$2.50 has been received at the publication office. All papers will be discontinued at the expiration of the time subscribed for."

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industries are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

LOCAL MATTERS.

Mr. Hornbeck of Silver Lake was here on Thursday with a son to enter College.

C. H. Greer of Tecumseh, Neb., and Mr. Wolf of Lincoln, that State, called at the College Thursday.

J. M. Rumbaugh of Blue Springs, Neb., and Milo Elliott of Topeka were visitors one day last week.

Mr. Avery of Wakefield was a visitor on Wednesday to his son, a member of the Third-year Class.

A larger number of students now gather daily in the Chapel than ever before in the history of the College.

The Higinbotham horse sale attracted many visitors this week who found time for a side trip to the College.

Mr. Town and his daughter of Topeka called at the College Wednesday morning, to visit their relatives among the students.

Assistants Cottrell, Mason, and Breese are doing service this week in charge of classes during the absence of Professors in the interest of science.

The smoke and mist of the past week have given to sunny Kansas the dismal hue of swampy Michigan just to make us duely thankful that it is not often thus.

President Fairchild spent the afternoon and evening of Saturday in Topeka, attending the meetings of Mr. Moody in connection with the Y. M. C. A. Convention.

Superintendent Thompson has sample sheets of the new type purchased this summer mounted for the use of students. The selection is evidently good, even to inexperienced judgment.

Some of the plants which adorned the lawns during the summer have been housed in anticipation of killing frosts; but enough of the more hardy ones yet remain to beautify the grounds.

Miss Emma J. Thompson of Garrison was called home some two weeks since by sickness in the family. The news reaches us this week that one brother has since died and another is not expected to live.

The College is represented at the annual meeting of the Kansas Academy of Science, at Wichita, this week, by Professors Failyer, Popenoe, and Kellerman, Secretary Graham, and Messrs. Willard and Marlatt, most of whom contribute papers.

Prof. and Mrs. Lantz last week enjoyed the pleasure of a visit from Mr. Dean of Harrisburg, a brother of Mrs. Lantz, who with his family stopped on their way to visit other friends in Colorado. Mr. and Mrs. Marvin of Clay Center joined in the family gathering, and all visited the College together.

Prof. Shelton started on Tuesday to inspect the actual condition of crops, especially of forage plants in the western part of the State, where little if any corn can be grown without irrigation. He will, next week, visit the U. S. Grass Station at Garden City, as well as other parts of the Southwest for similar facts. It is hoped that facts may be learned and conclusions reached which may aid the struggling agriculture of these semi-arid portions of the State.

Rev. Mr. Dixon of Bunker Hill led in Chapel exercises Friday morning, while many visitors from the State Congregational Association attended. Among these visitors were people from various parts of the State and world. Mr. and Mrs. Haskell and Mrs. McDonald of Lawrence, Mrs. Eddy of Leavenworth, Miss Paddock of Madura mission in India, and Miss Wright of the American mission in Turkey are especially remembered because of former associations with their names. We are thankful to Manhattan friends who have taken pains to bring in so many interested and interesting people.

The Crosby Steam Gauge and Valve Co. of Boston, Mass., have presented to the Department of Mechanics and Engineering a valuable instrument necessary in the study of steam engineering. The Crosby steam engine indicator furnishes the most accurate information to be had as to the precise action of the valves of a steam engine while in motion. It is only by its use that an experimental knowledge of the action of steam in the

engine cylinder can be had; and its value will be thoroughly appreciated by our advanced students. The generosity of the company can be better understood when it is known that the delicate instrument sells for \$88, and is not one of those things on which discounts are allowed. The superiority of this make above numerous others on the market is emphasized by the recent award to them of a gold medal at the Paris Exposition.

The presence of the Congregational Association of Kansas, in annual session at Manhattan this week, has brought scores of visitors to the College. Among them, Rev. S. F. Milliken and wife, of Wichita, old college acquaintances of Pres. and Mrs. Fairchild; and Mrs. Minnie Votaw Brett of Eureka are guests of the President's family. Others, too numerous to name, have inspected the College work with evident interest. There is planned a visit of the body of the Association after the hurry of the business is over.

It is impossible to give to those who have not followed the work in detail through the season the extent of the experiment station work in all departments. The careful records of feed, seeding, cultivating, harvesting, and weighing of the 250 varieties of potatoes shown now in Horticultural Hall may serve as a sample because most easily imagined; but this is far less intricate than many of the collections of data absolutely necessary to the continuance of an experiment, or the perfection of an analysis. Results to be worth anything must be certain and definite in all details.

Major J. P. Sanger, Inspector General of the Department of the Missouri, U. S. Army, spent the forenoon of Thursday in making the annual inspection of the Military Department of this College. The Major is an experienced officer of clear ideas and accurate judgment, whose inspection is thorough and complete. He expressed satisfaction with the large enrollment, regular attendance, and general tone of the Department. For a test of the actual effectiveness of the drill he hopes to give another inspection next June, when the multitude of recruits just received shall have become veterans.

The lecture yesterday was given by Mrs. Kedzie upon the theme, "Woman's Increasing Responsibilities," showing that here and there in the world particular women have in all ages risen to prominence, while the masses were from the nature of the civilization confined to purely domestic duties. Contrasting the life of our grandmothers with that of women in the same class of homes today, the increasing responsibility of women in church, society and government was clearly shown. Whether she desire it or not, whether it is desirable or not, the woman of today must be ready by inclination and education to bear her share of the burdens which society lays upon her.

Pres. J. K. Patterson of the Agricultural and Mechanical College of Kentucky, located at Lexington, visited this College in all its departments yesterday. He is making a tour of kindred institutions by direction of the Board of Regents of his College, having called at the Ohio University, the Michigan Agricultural College, and the Wisconsin University before coming here. The President gave a brief address to the students at chapel, recalling the fact that within his recollection the wilderness of Kansas has become a populous State, and from that illustrated the importance of education to so rapidly a growing people as the English-speaking races, which have grown in a trifle over a hundred years from twelve millions to a hundred and twenty millions. Pres. Patterson expressed hearty interest in the work of the College, and delight with the location and equipment in buildings and grounds.

GRADUATES AND FORMER STUDENTS.

C. W. Thompson, '89, has just assumed the duties of Deputy Postmaster at Edwardsville, Kan.

H. S. Willard, '89, spent last Saturday at the College. He is well pleased with his school at Keats.

Grace M. Pierce, of Winfield, Iowa, a student of 1887-8, hopes to continue her course here next winter and spring.

Laura B. Livings, student of last year, called at the College on Saturday last to show the buildings to her father and mother from Allensville, Ind.

F. A. Hutto, '85, writes from Ravanna, Garfield County, that though he believes yet in the ultimate outcome of Western Kansas, he has come to the conclusion that he would rather come out for

the present and watch from a distance its growth and progress than to stay and share the riches after a while. He goes to Stillwater, Oklahoma.

W. C. Moore, '88, who has for eighteen months past edited the Junction City *Union*, has purchased a third interest in the business. The firm name is Montgomery, Gilbert, & Moore.

The Westmoreland schools, under the principalship of Prof. E. M. Hutto, are doing better work than ever; and the teachers are all giving entire satisfaction.—*Wamego Teacher*.

COLLEGE SOCIETIES.

Scientific Club.—President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, Oct. 19th.
Before time of meeting the Society Hall was well filled. President Martin called the Websters to order, and after the usual opening exercises, began the business and pleasures of the evening by placing before the Society the names of G. W. Crouch, J. S. Kirby, and A. K. Barnes, as persons desirous of admission. The gentlemen were elected members and initiated. Messrs. H. N. Whitford and F. C. Burris discussed the affirmative of the question, "That the rights of suffrage be restricted to all male citizens over twenty-one years of age, who were able to read and write." The "women's suffrage" part of the question was not discussed. They stated that only those persons were fit to take part in the Government of our country who are able to judge of the national requirements, or understand something of political science, and that to do so, a man must necessarily be a reader. The arguments were based on these main thoughts. The negative, argued by W. T. Swingle and J. A. Davis, advanced the idea that since men are born equal, they may serve their country well whether educated or not, and that they deserve full citizenship. These gentlemen also produced much evidence to prove that restrictions on suffrage did not influence people to educate. The negative won the decision. J. N. Bridgman gave a good rendering of a dude's experience with a horse car. We feel certain that Mr. Bridgman would not look lonesome in a dude's clothes. G. E. Stoker gave a declamation entitled, "Our Duty to the Republic." Paul Milner read a selection. G. K. Thompson read an interesting essay, describing a trip from Breckenridge to Montezuma. Mr. Thompson spoke of the important part "Nerve Tonic" has in the life of a western stage driver. Discussions were given by W. M. Towne, about St. Mary's College, D. A. Webster about Printing, and H. Darnell on Discussion, their uses and abuses. The Society decided to hold its Special Session in the Society Hall, for we may then bring or invite our guests to our "home," and they may see where we live and how we live. H. D.

HAMILTON HALL, October 19th.
The attendance was not as large as heretofore, as several members were absent from the city. Those gentlemen whose names were proposed last meeting were initiated. They were J. T. Coleman, E. J. Faris, J. A. Rokes, F. Speer, and G. L. Gilbert. The programme of the evening was opened by a declamation by N. A. Anderson. Messrs. Thackrey, Yeoman, and Hartley were appointed to act as Judges in the debate. A. K. Midgley was the first speaker on the question, "Resolved, That war has been a beneficial factor in civilization." The speaker illustrated by taking up the history of some of the ancient nations, thereby showing how these countries grew when they were warring with one another. The growth of our own country was referred to in the same connection. L. S. Strickler was the first negative speaker. He very ably refuted argument brought forth by his opponents. G. Toothaker was second speaker on the affirmative. H. E. Moore spoke at some length of the downfall of Rome, and tried to prove that it was due to strife. The debate was closed, and the Judges cast their ballot in favor of the negative. After a recess of ten minutes, music was furnished by F. A. Waugh and others. G. V. Johnson's declamation, entitled "Health Organizations," was well committed and delivered. F. Beech in his essay told of his trials and tribulations in finding a suitable subject for an essay. The "Worm of the Still" was the subject of W. G. White's select reading. After a declamation by C. D. Adams, the *Recorder* was presented by Editor-in-Chief C. F. Hartley. The paper was filled with productions which showed that both editor and members of the Society had put considerable time and thought on the articles. The music committee was instructed to give the Society another piece of music; this they did with success. Under the order of propositions for membership, the name of L. E. Mann was presented. After a report by S. Van Blarcom, Critic protem, the Society adjourned. C. E. C.

SOCIETY HALL, October 18th.
Society called to order by President Secrest. Music was the first order of exercises, quartette, Messrs. Hutto, Smith, Westgate, and Lea; Maude Parker, organist. Devotion, led by V. Armour. Roll was called by Secretary, followed by a recitation by Maude Parker. Debate, question, "Resolved, That books have more influence on our characters than companions." The question was debated with animation by W. W. Hutto and Mr. Orr on the affirmative, and J. H. Zimmerman and Martha Cottrell on the negative. The President appointed May Harman, R. D. Whaley, and John Davis as Judges, and they decided the question two to one in favor of negative. The *Gleaner* was presented and read in a very interesting manner by Jennie Green, after which there was a short recess. Congregational singing followed recess, then extemporaneous speaking from subjects furnished, which was engaged in by nearly all the members. This part of the programme is particularly instructive and beneficial, as all can take a part and gain confidence in public speaking. Next were reports of committees. The names of R. E. Walker and J. L. Dial were presented as candidates for membership. Report of the Critic, Miss Senn acting pro tem. Closed with singing duet by Hattie Paddleford and Martha Cottrell; Christine Corlett, organist.

SOCIETY HALL, October 18th.
The Ionian Society was called to order by President Waugh. After singing and devotion, the following persons, Misses Skinner, Thompson, Shaffer, and Pender, were elected members. The Society then listened to a song by Misses Henderson, Pierce, Vail, and Pearce. Anna McConnell then read a piece entitled "Mr. Caudle's Second Wife." This was followed by a declamation by Millie Frost. Music, a quartette, by Misses Houghton, Kinney, McConnell, and Pearce. Miss Pearce composed of the song. Maude Whitney chose as a subject for discussion, "Is money a blessing or a curse?" The Society then discussed the question. The "Oracle" was read by Susie Hall. The programme closed with music by the Ionian Orchestra. It was moved that hereafter ten minutes parliamentary practice be inserted in the programme. Lessons from Robert's Rules of Order are to be assigned by the President. Roll-call with quotations, and adjournment.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Moline, Elk County, has organized a Chautauqua Literary Society.

The schools at Greeley, Anderson County, have closed on account of diphtheria.

The Wabaunsee County Teachers have recently established a teachers' library.

A movement is on foot to start a military organization among the students at Washburn.

The School Board of Junction City has recently bought maps and geographical apparatus costing \$145.

And still they come. Ninety-seven men and seven women underwent a civil service examination at Topeka this week.

The State University delegation to the Academy of Science which meets at Wichita this week numbers five Professors and several students, who, together, present eighteen papers.

Pottawatomie County has a school population of 6,580. The total enrollment for the year ending June 30th, 1880, is 5,447, and the average daily attendance 3,017.—*Wamego Teacher*.

The ninth semi-annual meeting of the Social Science Club of Kansas and Western Missouri will be held at Wichita, November 7th and 8th. The railroads give special rates to delegates—one and one-third fare.

Governor Humphrey appointed the Hon. James S. Graybill of Leavenworth Regent of the State Normal School, vice West resigned. Mr. Graybill is cashier of the First National Bank and Chairman of the Republican County Central Committee.

The *Kansas Teacher* is a new educational paper published at Wamego by R. M. Pemberton, J. S. Mitchell, and E. M. Hutto. It is devoted to the educational interests of the State of Kansas in general and Pottawatomie County in particular. The subscription price is fifty cents a year.

The English Lutheran Synod of Kansas, recently in session in Atchison, voted to begin setting aside a fund of \$20,000 to endow a chair in Midland College at Atchison, to be known as the "Kansas Synod Chair." The Nebraska Synod will also endow a chair with a like sum. The Synod also voted to support six young men at the College who have undertake the study of the ministry.

N. E. Binder, one of the teachers in the Abilene schools, has made things lively in that city for a day or two. It was discovered that he had forged a note for \$100, and on being confronted with the evidence of his guilt, he owned up. The holder of the note managed to get something out of him, and he let the fellow skip. The forger is 27 years old, is a good-appearing fellow, and "sang in the choir," but he left a board bill of \$36 and other accounts unpaid.—*Manhattan Republic*.

The State University has just added another big man to its list of professors. This time the Professor is from Princeton College, the fountain head of Presbyterianism in the United States. Edwin M. Hopkins is the gentleman's name, and he is to be Assistant Professor in the Department of English Literature. Dr. McCosh, the ex-President, and Dr. Patton, the President, say that Prof. Hopkins is a man of ripe scholarship and rare personal character. He is especially equipped in English literature, though he has done exceptionally thorough post-graduate work in mathematics and philosophy. He will be one of the strongest young men in the Faculty.—*Topeka Journal*.

FREE TEXT-BOOKS.

We have felt no enthusiasm whatever over the plan to furnish free text-books to all in the public schools, and our objections have by no means been removed by the trial of the experiment thus far, notwithstanding all reports in its favor; but now comes the School Board of Chicago, urging that the State furnish clothing to all school children needing it. And, as if this were not enough, the Socialists have gone a step farther, and urge that "one good, warm, square meal a day" be furnished, at public expense, for all school children in the city. One might think that food for the poor would be sufficient, but the Socialists use the same argument that was plied so effectually for the free text-books, to the effect that to supply such a meal for the

poor alone would make them feel uncomfortable. After clothing and feeding and educating the children at the public expense, there would seem to be only one thing more for the State to do, viz., to furnish them remunerative employment!—*The Congregationalist*.

MORTAR-BOARDS.

A mortar-board may be defined as a square, black, flat, overshadowing hat worn by University men to distinguish them from mere citizens. It may also be defined as an affectation, or as an anachronism, or as an absurdity, or as a folly. The University gown worn by students in England may be respectable as a survival, a relic of clerical antiquity, a bit of University mediaevalism preserved out of a love for antique bric-a-brac. But the mortar-board worn once in England as a distinctive University mark, and by what the old Puritan used to call the "Square-cornered Clergy," introduced into American universities, and worn by its boys, or even girls, is but the affectation of an affectation, the assumption of an absurdity, which can never be naturalized within our simple institutions.

It is reported that a clique at Johns Hopkins University are trying to bolster each others' courage up enough to don this archaism in the streets of Baltimore. We do not wonder that the other students have hooted at them and pelted them with jibes. If there be anything characteristic of the American gentleman, or of the true English gentleman, it is his desire not to obtrude himself upon the notice of other people. He does not talk loud, he does not dress loud. It is his desire that if he be noticed he shall be noticed for what he is, and not for any display he makes. Now, the only purpose of this flat-head decoration is to attract attention; to have it observed and noticed as one passes by that he does not belong to the common civilian herd, but to a different and special class of people; that, he forsooth, is a University man! But what is a University man more than any other man? He is not yet even a scholar. He is hoping to become a scholar. He is a scholar in making, a scholar in the dough, a cake half baked. Now, if there is anything seemly, it is that such a young man should walk about the world in a modest or retiring way. President Gilman has too much sense to go about the streets of Baltimore making a guy of himself. Professor Gildersleeve would not assume distinction by his dress, so as to elevate himself above any merchant or banker that walks the streets. Give us more room in the upper story and less thatch.—*New York Independent*.

ELECTRICAL ADVANCEMENT.

The business of furnishing electricity for light and power is one in which New England has taken an early, and so far a very profitable, interest. It is only some five years ago that electric lighting for streets, houses, and manufactories emerged from the realm of experiment to that of successful and economical practical application. How rapidly the development has since progressed may be gathered from the fact that, in 1883, the total sales of the largest of these companies were only \$300,000, while in 1889 they were \$3,500,000. And in 1889 the total business of this company will amount to over \$7,000,000.

Other great companies have accomplished an equally marvelous record. Everywhere the effort of the inventor is to discover some new method of applying this great force. It is now to be seen at work in telegraphy, telephony, in alarm systems, in lighting, in driving our street-cars, and in many other channels.

As yet the best statement of the economy in the use of electricity is that there is a minimum of loss in this method of distributing power. There is no saving in the production of power. Edison says that here lies the great problem of the future, how to produce electricity more cheaply.—*The Congregationalist*.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

KINDRED INSTITUTIONS.

Prof. R. C. Kedzie of the Michigan Agricultural College is threatened with a \$50,000 suit for damages on account of his publishing facts in regard to certain fertilizers offered for sale in that State.

The Executive Committee of the State University concluded its labors today. Besides routine business, the Committee selected a site and ordered the immediate erection of a barn in place of the celebrated Sanborn structure, destroyed by fire last spring. It will cost between \$6,000 and \$8,000. The Law Department of the State University opened today with an enrollment of forty-three students. This is the best opening in the history of the institution, and is twenty better than last year.—*Kansas City (Mo.) Times*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses. Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$1.00 to \$200 a year.

MANHATTAN ADVERTISEMENTS.

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R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

NOTE ON THE OVIPOSITION OF A WOOD-BORER.*

THE beautiful beetle known to the entomologist as *Tragidion fulvipenne* is not common enough to have received a vernacular name, and at no time have we had a surplus stock of specimens in our collections. Being on the watch for facts in its life history, I observed with interest that in the warm days about the end of September, my wood pile was the center of attraction to a number of these beetles. Noting that all the individuals were females, and that, though at first seen only flying, they presently alighted with evidence of an earnest purpose, I watched them more attentively. They seemed to be attracted specially to the smooth sticks of round wood of a species of oak, without much doubt the chestnut oak, as this is the only smooth-barked oak abundant in the vicinity of Manhattan. Over these sticks they crawled, paying little regard to my presence, their bodies close to the wood, their sensitive antennae carried forward and constantly vibrating, as they investigated apparently every inch of the surface. The evident object of their search was suitable spaces for the deposit of their eggs, and though I watched with some care during my noon hour for several days, I did not succeed in observing the beginning act in oviposition. I was fortunate enough to see two females that had not completed their work, however, and so was able to discover the eggs, which I might otherwise have failed to find at all. When detected in oviposition, the females were standing on the smooth bark, transversely to the stick, their bodies close to the surface, their antennae bent under at the tips, which were touching the bark, and the broad tip of the abdomen closely appressed to the surface over which the insect stood. The close contact of the motionless tip of the abdomen to the bark prevented my noting the exact mode of placing the egg, and presently, becoming somewhat impatient, I lifted a beetle from position; and, to my surprise, instead of an opening in the bark as I had anticipated, I saw a tubercle simulating so closely in appearance and color the corky outgrowths common on the bark of the chestnut oak that I was at first inclined to believe it one of these, and to question the purpose of the female in maintaining so long the position described. On an examination of this tubercle, however, I found it to be hollow, and within it, lying on the bark, with no puncture or abrasion in the latter to be seen, was an oblong egg of a translucent, dull white surface, smooth and without markings so far as I could see with a pocket triplet of good definition. This egg was sufficient in size nearly to fill the hollow tubercle, or egg-case, as I may now call it. The egg case is rather regular, elliptical, strongly convex, measuring about one-sixteenth of an inch in length. Under the microscope, the case appears on the surface to be made up of scales of the thin external layer of the oak bark, intermingled with glistening particles, as of dried mucus. The case is at this date unchanged, and no sign of the hatching of the egg is yet visible. I have been unable to find the record of similar habits in oviposition in any of the *Cerambycidae*. Commonly the eggs are either laid under scales or in cracks in the bark, as with most of the wood-borers, or in a rough fissure made by the insect herself for the purpose. I have found no reference to the oviposition of the *Elaphidion*, our common allies of *Tragidion*.

The beetle in question is attracted to some coarse flowers, as the *silphium perfoliatum*, or is destructive to ripe fruit, as peaches, by gouging into the tender fruit, the juices of which are a favor-

* Read at the Wichita meeting of the Academy of Science.

ite food. I have also observed them eating the flesh of a ripe watermelon in company with other fruit-boring insects, the *cetonians*, wasps, and flies.—Prof. Popenoe.

NEWSPAPER PUNCTUATION.

THERE is a growing tendency among writers on daily newspapers to adopt a style of close punctuation in striking contrast to the loose methods of pointing formerly in vogue on most papers. While this change is generally recognized as a step forward, there are some authors in whose eyes it does not find favor. A writer whom I have in mind as having expressed himself quite strongly against the growing popularity of close pointing, while he admits that, on magazines and periodicals, it is eminently proper, and to be expected as a matter of course, and further, that when one reads his magazine at leisure moments, it is a pleasure to notice the careful manner in which the article has been constructed, says that, "on a daily newspaper, it is entirely unnecessary, and, in some cases, an absolute nuisance. When a man takes up a newspaper, he wants all the news in the shortest possible time, and does not want to wade through a labyrinth of punctuation marks to get it." Again, he says: "When a man has hurried home to tea, and picks up the evening paper, he does not want to stop and take little gasps of breath at the lapse of two or three words, where the proof-reader has inserted perplexing little commas."

If a style of close punctuation is proper in the magazine, whose readers peruse it at their leisure, why is it not equally desirable, or even more so, in the daily newspaper, where matter is prepared as well as read in a hurry? What is the object of punctuation if it be not to elucidate the meaning of the author, whether he be preparing an elaborate discourse or rapidly sketching the happenings of a day? In either case, the points are used to facilitate the expression of the writer's ideas, to prevent ambiguity, and, further, to enable the reader to rapidly scan the text, if he choose, without hesitation; and this by reason of the very precision to which our friend takes exception. The omission of the "perplexing little comma" oftener retards than aids the progress of any but the most attentive reader, making it necessary, in many instances, to read a sentence over several times before the author's meaning is made clear; whereas, by the liberal use of this important point, a sentence or a clause admits of but a single interpretation.—Supt. Thompson.

REFORM IN NOMENCLATURE OF VEGETABLES.

AT a convention of the horticulturists of Experiment Stations, in Columbus, Ohio, a committee was appointed to consider methods of reform in nomenclature of vegetables, and their report, lately presented to the public, gives evidence of the inauguration, upon proper lines, of this very important movement. The pomologist will remember the opening effort in a similar reform among fruit lists of the American Pomological Society, a few years ago, and will acknowledge the success of this work, although names still subsist in nursery lists, or are applied by introducers, that are not conformable to the rules laid down by that Society. The ease with which varieties in vegetables are originated, and choice strains of seed secured by selection, has been an encouragement to the unwise dissemination of garden sorts of no merit, or to the sending out, as new, a local improvement of a sort already widely distributed. Strife between dealers for the "earliest and best" or the "earliest of the early," has led to the multiplication of descriptive names to a degree well

nigh intolerable. The absurd pretension of the majority of such names is readily shown by comparative trials of varieties as now carried on by many of the stations, but the reports of these trials are commonly only available after the introducer has largely profited by his misrepresentations—for such in many cases they undoubtedly are. If buyers of vegetable seeds will co-operate with the Committee in demanding the reform now urged, there need be little doubt of the final success of the measure, as dealers will soon answer the popular demand.

The Committee has recommended the observance of a few simple rules, to follow which need not in the least interfere with legitimate trade purposes. Moreover, conformity to these rules will do much to repress the tendency toward the multiplication of synonyms, now so evident to those who compare varieties, as well as to induce more confidence in dealers' catalogue names. As the rules are of general interest, they are here given:—

1. The name of a variety should consist of a single word, or, at most, of two words. A phrase, descriptive or otherwise, is never allowable; as, *Pride of Italy*, *King of Mammoths*, *Earliest of All*.

2. The name should not be superlative or bombastic. In particular all such epithets as *New*, *Large*, *Giant*, *Fine*, *Selected*, *Improved*, and the like should be omitted. If the grower or dealer has a superior stock of a variety, the fact should be stated in the description immediately after the name, rather than as a part of the name itself; as, "*Trophy*, selected stock."

3. If a grower or dealer has procured a new select strain of a well-known variety, it shall be legitimate for him to use his own name in connection with the established name of the variety; as, *Smith's Winningstadt*, *Jones's Cardinal*.

4. When personal names are given to varieties, titles should be omitted; as, *Major*, *General*, *Queen*.

5. The term *hybrid** should not be used, except in those rare instances in which the variety is known to be of hybrid origin.

6. The originator has the prior right to name the variety; but the oldest name which conforms to these rules should be adopted.

7. This Committee reserve the right, in their own publications, to revise objectionable names in conformity with these rules.

* A hybrid is the product of true species. There are few, if any, instances of true hybrids among common garden vegetables. The union of varieties gives rise to a cross.

—Prof. Popenoe.

AGRICULTURAL COLLEGES.

The great mistake in connection with our agricultural colleges is the fact that in many cases a classical course is a part of their curriculum. It is a fact that the law provides that this course of instruction should not be forbidden in the agricultural colleges; but this seems to us to have been inserted to enable existing institutions of learning to add the agricultural branch to their institutions should the States so legislate. In other words, it was not mandatory, but it was permissible.

An agricultural and mechanical college should be devoted to this specific object, and no other. The country has sufficient classical colleges to supply advanced education, and these State and United States institutions are designed for the masses and are intended to provide them with such an education as will fit them for success in agricultural and mechanical arts.

When connected with classical studies, the students of agriculture and mechanics are always at a disadvantage, if they fail to join in the higher studies. We mean they are practically in a lower circle, and are regarded in this light at the institution. Farming and mechanical labor are at a discount; and the impression becomes so powerful that the result is a classical course, and the farmer and mechanic go out—not to the farm and workshop—to fill the already overcrowded professions.

We have become so well satisfied that this is the result, that we are disposed to advocate that the moneys supplied by the general Government shall be devoted to the support of an institution which shall be agricultural and mechanical, and otherwise free from any connection with those classical and literary courses of study which are not a necessity.—*Maryland Farmer*.

KANSAS THRIFT.

Manhattan has a lock factory.

Kingman is to have a sack factory.

An electric light plant is assured to Manhattan.

The Currie Windmill Co. have moved their plant to Manhattan.

Fifteen hundred car loads of cattle have been shipped from Caldwell this fall.

A soda factory is to be operated in connection with the new salt shaft at Kingman.

A watermelon farm near Ellsworth is the largest in the State. It contains eighty acres.

Medicine Lodge is to have a flour and grist mill with a capacity of making 190 barrels of flour per day.

At Ellinwood is a field of beets that yields 3,959 bushels to the acre. Thus Kansas soil is destined to beat the world.—*Atchison Champion*.

The *Gazette* announces that St. Marys has a fine quality of cement rock, and that arrangements are being made for the establishment of a cement factory at that place.

The September returns by counties, as furnished by M. Mohler, Secretary of the State Board of Agriculture, place the corn yield of Kansas at 276,541,338 bushels.

According to the report made at their recent quarterly meeting, by the Kansas butter and cheese manufacturers, the increase in the manufacture of these products in this State is marvelous.

At the Kansas State Fair, this year, Wyandotte County came out first, Shawnee second, Ellis third, Jewell fourth, and Kiowa fifth. In the awards for fruit, Allen County scored a victory, Jewell following for second place.

ARTESIAN WELLS.

From an article by Prof. Robert Hay in the last report of the Secretary of the State Board of Agriculture, we clip the following interesting statements as to artesian wells in general and Kansas possibilities in irrigation by such means:—

"An artesian well is one in which an artificial shaft is filled to overflowing from water which enters it from some distance below the surface of the ground. The water may spout up with force and rise higher than the surface, or it may barely reach the point at which it flows over. Wells are sometimes called artesian when the water rises in the tube but does not reach the surface, but the true artesian well is one from which subterranean water flows out at the top. The conditions under which this can occur are the same as those which govern the supply of water to the upper rooms and fountains of a large city. The source-reservoir, or head of water, must be higher than the place supplied, and the stream must come from the head in a closed pipe. There are some wells whose flow is due to other than the hydrostatic pressure here described; viz., to gas pressure and rock pressure; but these forces need not be illustrated here.

"In nature, the channel through which the water flows is more like a sponge than the orifice of a pipe. It is a porous rock—sandstone, conglomerate, gravel, sand or limestone more or less cracked or broken. The walls of the natural pipe must be impermeable, and usually beds of clay or clay-shale serve this purpose. To get the head of water, the beds of sandstone, shale, etc., must have a dip, i. e., be higher at one part than another. The best conditions are when the rock strata take a basin formation, highest on the edge of a circular area, and the well sunk in the middle of the area. It is to be understood that all the waters of the land are meteoric waters—they have their origin in the rains and snows. If the rain falls on porous rock on the upturned edge of a basin which within the basin is overlain and underlain with impervious clays, then a well sunk near the middle of the basin would be artesian.

"In discussing this subject, it is necessary to inquire how far good artesian water may be available for irrigation, i. e., how much will a given flow irrigate? This is merely a question of arithmetic. A flow of 100 gallons per minute is almost exactly 800 cubic feet per hour. This is 19,200 cubic feet per day. This would cover 19,200 square feet of land one foot deep, or 230,400 square feet of land one inch deep. An acre of land con-

tains 43,560 square feet, which is contained in 230,400, 5.28 times. That is, a flow of 100 gallons per minute would in a day cover a little over $5\frac{1}{4}$ acres one inch deep. Now, supposing one-third (which is a large estimate) of this water were lost by evaporation, this would suffice to put one inch of water on thirty-five acres once every ten days ($3\frac{1}{2}$ acres per day). This, for a whole year, is equal to a rainfall on 35 acres of 36 inches—abundant for any growth of vegetation. It is certain, also, that except in summer the evaporation would not equal that estimated above. In June, July, and August it might be desirable to give the land half an inch of water every five days, so as not to have any long intervals. A well, then, of a hundred gallons per minute, with the rain-fall of ten inches per annum (the least given in the fourteen years' records at Dodge City), would be ample, if properly used, for the irrigation of fifty acres of land. A ten-gallon well would irrigate five acres. It is a reasonable estimate to suppose the existing Meade County wells are yielding 600 per minute, so that three hundred acres could readily be irrigated, and small fruits and vegetables be raised in abundance in any year, however drouthy, and orchards and groves be made to beautify the region; and these in their turn would serve to conserve the moisture supplied by the rain-fall. The writer believes that the Coolidge district would yield abundance of artesian water at the present depths of the wells for the irrigation of a thousand acres. There are other districts in the West that will probably do as well, though the prospector's drill, without guidance, is as likely to miss them as to find them."

THE FENCE MUST GO.

The *Christian Union* thus announces its opposition to fences:—

"The agitation against the universal and generally unnecessary use of the fence has already borne substantial fruit in many parts of the country. There are many villages East and West from which these offensive barriers have been entirely removed; and one feels in looking at many a lovely town that while the land is held in severalty, the landscape belongs to the community. * * * The American fence is the ugliest feature of the American landscape. It is never otherwise than offensive to the eye, and it is often in a condition of general dilapidation, or furnishes a convenient place for the deposit of the odds and ends of the farmer's work. We are now substantially agreed that the fence is an ugly object; the expense of building and keeping it in order, both in actual outlay and in the land which it occupies, has demonstrated over and over again that it is one of the most costly and least remunerative investments which the farmer makes; and it is also conceded that, for the most part, the fences now in use serve no purpose whatever. A little more stringent control of cattle, and the legitimate use of the fence for paddocks to confine them, would reduce to a minimum the large expenditure to which most farmers are now committed by extravagant fence-building."

After citing the views of fifteen or twenty well-known authorities in ridicule, denunciation, or explanation, it closes as follows:—

"We have summarized at length this strong expression of opinion, because we believe the agitation against the useless fence involves a good deal more than æsthetic progression. It would be a sufficient cause to urge the removal of the unnecessary fence, if in that way greater beauty of landscape could be secured; but the no-fence reformer has additional ground to stand upon when he points out the conceded extravagance and waste, both in money and land, of the present fence system."

Such an array of judgment ought to secure our western citizen not yet fenced at all against the waste and ugliness of these unsightly barriers.

A LONG ROW.

A correspondent of the *American Rural Home* gives the amount of travel it takes to raise a crop of corn as follows: "I have a twenty-acre field forty by eighty rods. To break this up would take one hundred and sixty-six miles; harrowing it, about forty miles; furrowing, ninety miles; planting, forty-five miles, if with a planter; and if chopped and then covered, ninety miles. And for each plowing of two furrows in a row, ninety miles, or five plowings, four hundred and fifty miles. Thus you see that it takes 800 or 900 miles of travel to raise twenty acres of corn, not counting going to and returning from the field."

LOCAL MATTERS.

The greenhouses are crowded with plants just gone into winter quarters.

Two more of Prof. Brown's charts have arrived. There are yet a few to come.

Prof. Popenoe this week gathered the first crop of butternuts from a tree on the College grounds.

A severe frost last week put a winter dressing upon the various flower-beds which have so richly adorned the grounds this year.

Messrs. Willard and Marlatt brought home many fine specimens of rock salt from the Kingman mines which they visited in company with other members of the Academy of Science.

"Trade and Transportation Between the United States and Spanish America" is the title of a considerable volume just received from the Government Printing Office through the Treasury Department.

Nine members of the Third-year Class, Misses Harmon, Harrington, Hoop, and Houghton, and Messrs. Gilstrap, Gist, Hovey, Hunter, and Johnson, filled the public hour yesterday with as many interesting declamations.

"Historical Sketches of the University of North Carolina," now a hundred years old, with a complete catalogue of officers and students for that period, make a handsome volume of 250 pages. It is well illustrated.

This College will not be represented in the Convention of Agricultural Colleges and Experiment Stations at Washington, November 12th. It seems impossible to spare members of the Faculty at this time, and the expense is considerable.

The examinations of last week were safely passed by nearly all the 410 students in attendance. In a few instances transfers from higher to lower grades were found necessary, and one or two have retired to their home school for better preparation.

Noble Prentis, friend of all educational institutions, called at the College on Thursday morning in the company of Rev. D. C. Milner. With interest in all improvements and a joke to fit every case, Mr. Prentis took in the College in all its parts from office to barn.

The kohl-rabi patch of rather more than one-third of an acre, making a part of field No. 2, was harvested and the crop weighed last week. The yield was 273 bushels, and the rate per acre 760 bushels, or 22 3/4 tons. Single bulbs weighing 20 pounds were found.

The immense flock of black-birds annually gathered in the forests about the old College place, preparatory to migration, has for a month past made its daily morning and evening journey to and from feeding grounds and roosting place. They will soon start upon the "grand tour."

The Farm Department has this week added to its stock of appliances a new sheller of the "Rustler" type, made by the Sandwich Manufacturing Co. of Sandwich, Ill. The new machine has self-feed, wagon-box elevator, and cob-stacker, with capacity for about forty bushels per hour.

Prof. Kellerman made a trip to Garfield, Pawnee County, this week, on his way from Wichita, to inspect fields of wheat affected with the so-called "stinking smut." He will include this in the new series of experiments in which he is trying thirty different methods of destroying this fungus growth.

It is gratifying to the College authorities to know that the meagre exhibit of our methods, sent to the Paris Exposition, is sufficiently prized to be desired for permanent display in a museum of educational devices to be maintained at Paris. The U. S. Commissioner forwarded last month a request for such donation, and it is gladly granted.

With the opening of the "show" season comes the bill peddler, after whose visit the lawns bordering on the road leading from the main entrance present the appearance of a deserted circus ground. The purpose of our friends might be served just as well, perhaps, if they would distribute their bills when the students are leaving college instead of when they are arriving.

Professors Popenoe, Failyer, and Kellerman, Secretary Graham, and Assistants Willard and Marlatt returned Saturday from Wichita. They report an interesting session of the Kansas Academy of Science. The College feels honored in

the choice of two members of the Faculty as officers of the Academy for the ensuing year,—Prof. Failyer as President, and Secretary Graham as Treasurer.

The visit of the State Association of Congregationalists to the College on Monday morning was interesting to all concerned. Fifty or sixty guests filled the rear seats in chapel, and overflowed into the gallery. Dr. R. Cordley of Lawrence, who was one of the first Board of Regents, led in the usual exercises, and Rev. Lewis Bodwell of Clifton Springs, N. Y., gave a short address full of earnest exhortation to manly and womanly lives. The visitors scattered about the buildings under the guidance of members of the Faculty and older students, spending from one to two hours in the tour of inspection. A large group gathered in the chapel to hear themselves as others hear them through the phonograph exhibited by Prof. Hood. They helped each other to not a little amusement in various remarks and notes of song, repeated with the peculiar twang of the phonograph.

GRADUATES AND FORMER STUDENTS.

F. J. Van Benthem, student of last year, has just returned to continue his course.

Mary Holcomb, Second-year in 1886-7, re-enters College this week, bringing a sister with her.

Susie Kokanour, student in 1885-6, was among the visitors from the Congregational Association on Monday.

E. Ada Little, '86, has just returned from her stay in Illinois and Iowa, suffering from a mild attack of malaria.

G. L. Clothier, Second-year student, whose sickness was announced a few weeks ago, has recovered, and is again in classes.

H. C. Peoples, student in 1881-83, writes from his home in Eskridge, for certificate of standing while here. He expects soon to enter the State Normal School.

W. W. Hutto, Third-year, and J. E. Taylor, First-year, have undertaken to furnish electric doorbell and other appliances as a means of support while in College.

J. S. Hazen, '89, orders his INDUSTRIALIST changed from Pittsburgh, Pa., to Savannah, Ga., at which latter place he fills the office of Observer in the Signal Service.

John U. Higinbotham, '86, is located in his new position with the Abbot Buggy Co. of Chicago. He writes that he and the Pan-American Congress arrived in the city at the same time, and were met by the usual delegation of prominent citizens, brass bands, etc., much to his edification.

F. W. Dunn, '84, writes from Aspen, Colo., ordering the INDUSTRIALIST. He says that although he and Mrs. Dunn enjoy the climate, they cannot think of making their home in a country where neither orchard nor vineyard is to be seen, and that in consequence their stay will be limited to two or three years.

We cull the following from a recent issue of *Our Brother in Red*, published at Muskogee, Indian Territory: "Gilbert Benson Cobb, infant son of Mr. and Mrs. A. C. Cobb of Riverside, now rides in a brand new baby carriage. He was awarded this luxury by being pronounced by the judges to be the best-looking baby at the Fair, Friday."

Among the former students who helped to welcome the College delegation to the meeting of the Academy of Science, at Wichita, last week, were Miss Sadie Cowgill, S. A. McGinnis, F. K. Reasoner and his sister Bertha, all of whom are now students in Garfield University; C. A. Latham, now a hard-working young lawyer, and Prof. M. A. Carleton of Garfield University.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentage and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, October 26th.

Vice-President Stoker called the Websters to order. C. A. Campbell led in devotion. T. E. Wimer was appointed to fill the place of the absent Corresponding Secretary. J. B. Paddock and A. R. Gilbert were initiated. The question presented for debate was, "Resolved, That the different classes of Society are necessary to civilization." The affirmative was argued by W. L. Morse and E. R. Burtis; the negative, by S. C. Harner and L. S. Harner. The speakers produced some very satisfactory argument, much of it being based upon historical evidence. The Society decided in favor of the affirmative. Mr. Pugh gave a declamation which elicited much applause. Essay, E. W. Curtis, "War: what it is, and its object." A. M. Wilkes read an essay on conversation. Music committee, E. S. Curtis, was assisted by Messrs. Pugh and Holcomb. The *Reporter*, read by W. S. Arbuthnot, was highly appreciated. We quote as follows from one of the articles: "We must be something ourselves and think something of ourselves in order to have others think well of us. The man who has ambition and push to assert his rights and to get his share of the world's goods is the man who has influence in the community in which he lives. Of course he can exert this influence for good or bad. But without it he could have no effect in any direction. We must prepare ourselves for a place in the world, show ourselves capable of it when we obtain it, if we would amount to anything. When the goal has been reached, and we have become finally fixed in our position, we can offer our influence to help others." On looking over the list of names of those who are members, it was found the present membership is eighty-one. This seems a very prosperous year.

H. D.

SOCIETY HALL, October 25th.

The Ionian Society was called to order by President Waugh. Lena Blythe was initiated. Maude Whitney then played an instrumental solo. A select reading by Fanny Kunkle gave some good advice to young ladies. A declamation was delivered by Laura Barr. Eda Hederstrom then read an essay entitled, "A Dream of the Future," telling what the Ionian Society would be doing in twenty years. The *Oracle* was edited and read by Julia Pearce. The next in order was debate, which was turned into a discussion by a vote of the Society, the leader on each side opening the discussion for her side. The affirmative of the question, "Resolved, That newspapers do more good than evil," was opened by Myrtle Harrington, the negative by Fanny Waugh. Vice President Houghton occupied the chair. The Society all took part in the discussion. A vote was taken and gave a majority of five in favor of the affirmative. Parliamentary practice for ten minutes. The names of Misses Wiley and Selby were proposed. Alice Vail was appointed a committee of one to see about procuring Robert's Rules of Order. Roll-call with quotations, and adjournment.

S. E. H.

HAMILTON HALL, October 26th.

The President not being at the Hall at 7:30, the Vice President called the Society to order. With the exception of one meeting, the attendance has been large this term. After prayer by R. W. Newman, the Society proceeded to ballot on the name of L. E. Mann. The gentleman was next initiated. To open the programme of the evening, G. A. Umbarger pleased the Society with a declamation on Geo. Washington. C. M. Ginter announced as the subject of his essay, "The Corn-growing Season." This was his first effort in society work, and he should be praised for the production. F. A. Thackery read an interesting essay on the life of Aaron Burr. "Should savages have full right to the soil?" was the question which S. I. Borton and H. C. Cobb argued on the affirmative, and E. C. Coburn and G. V. Johnson on the negative. A unanimous decision was rendered for the negative. F. A. Yeoman furnished entertainment for the Society in the way of select reading, entitled "Tom Moore." A quartette consisting of A. T. Ellsworth, F. A. Campbell, W. A. Anderson, and J. D. Riddell favored the Society with the appropriate music, "Going Home." R. Snyder outlined to the Society some of the relations between farmers and representatives in his oration. H. R. Phillips discussed the study of astronomy, tracing very briefly the development of the science from the earliest times. A. C. Newberger discussed the system of training at West Point. B. Skinner described the system of examination and grading in other kindred institutions of this country. Under the head of propositions for membership, the names of W. J. Towne and J. L. Lamm were proposed.

E. C. C.

SOCIETY HALL, October 25th.

The Alpha Beta Society was called to order by the President, Miss Emma Secrest. The first on programme was a duet entitled, "Far Away," by Mr. W. W. Hutto and Miss Julia Green; E. C. Thayer, committee. Mr. Armour then led in devotion. Roll-call. Mr. W. W. Conner favored the Society with a humorous select reading entitled "Thanksgiving Growl." R. E. Walker and J. L. Dial were elected and initiated members. Debate, question, "Resolved, That society in general is retrograding." E. P. Smith opened the discussion with an able and graphic description of the effects of drunkenness and gambling on society now as contrasted with their effects in past ages. He showed how selfish mankind has become, with a corresponding decrease of true religion. Bertha Kimball opened the negative by giving statistics in regard to religion and intemperance. She stated that mental education must of necessity improve society; and that the present prevalence of education is good proof that the world is better than it was many years ago. Bertha McNair, on the affirmative, brought in the state of politics, at present, in contrast with former days. J. E. Taylor, on the negative, compared the religion of the ancient world with that of today. He showed how cruelty has relaxed, and torture as punishment has been almost abolished. The closing speaker simply reiterated what had been said. The Judges, Misses Green and Senn and Mr. Hutto, decided unanimously in favor of the negative. The *Gleaner* was then presented by Callie Conwell. It was short and to the point, well written and interesting. Recess. Music by the Society. Under the order of informal speeches, B. H. Pound described the prison system of the United States. He questioned the morality of a system that allows the great mass of the people to receive benefits from the labor of the criminal classes. He spoke of the system of transportation practiced by some countries, and advocated its adoption by this country. Jeanetta Zimmerman advocated a change in our programme, and the adoption of divisions for *Gleaner* work. W. E. Lea made a speech of criticism on the subjects of base-ball, absentees, and wearing badges. A spirited discussion then ensued about base-ball and badges in which quite a number of members took part. Miscellaneous business. The names of Fairy Strong, Mary Brooks, and J. E. Nickels were proposed for membership. Assignment of duties. Report of Critic. Reading of the minutes. Music by Messrs. Orr and Westgate and Misses Parker and Greene. Adjournment.

G. L. C.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The teachers of Mitchell County held an enthusiastic meeting in the High School Building at Beloit, Saturday, October 19th.

The directors of the Topeka Art School have about \$350 in the treasury which they intend investing in a painting or etchings.

The Concordia *Empire* has placed a new cyclopedia of ten volumes in the Hollis school of Concordia. The pupils are making good use of it.

The September returns by counties, as furnished by M. Mohler, Secretary of the State Board of Agriculture, place the corn yield of Kansas at 276,541,338 bushels.

Mr. M. Chidster, formerly Superintendent of the Wichita schools, has become vice president and associate editor of the Southwestern Newspaper Plate Co. at Wichita.

According to the report made at their recent quarterly meeting, by the Kansas butter and cheese manufacturers, the increase in the manufacture of these products in this State is marvelous.

The Central Kansas Teachers' Association will meet in McPherson November 29th and 30th. Senator H. B. Kelly, State Superintendent Winans, and a number of other prominent men will address the meeting.

The Topeka Library Association has received the promise of a \$1,000 subscription from A. Munroe of Lawrence, to be used as a permanent book fund. This will be the third or fourth subscription recently received by the library for this purpose.

Mr. Frank E. Ward of Joliet, Ill., has been appointed foreman of the electrical engineering machine shops at the University. He is a thorough mechanic, and comes with high recommendations from his employers. A large amount of machinery will arrive soon for this department, and Mr. Ward will have charge of all machine work connected with the department of electrical engineering.—*Lawrence Record*.

Prof. E. L. Nichols, formerly of the University of Kansas, now of Cornell, and Prof. W. S. Franklin, of the University, have recently published three scientific monographs entitled respectively, "A Spectro-Photometric Comparison of Artificial Illumination," "The Electro-Motive Force of Magnetization," and "An Experiment Bearing upon the Question of the Direction and the Velocity of the Electric Current." Two of these highly technical but very interesting and useful papers have been printed in the *American Journal of Science*.—*University Courier*.

The Kansas Academy of Science closed its twenty-second annual session at Wichita, last Friday. It was decided to hold the next meeting at Lawrence, commencing October 15th. Officers were elected as follows: George H. Failyer of Manhattan, President; D. S. Kelly of Emporia, first Vice President; F. W. Cragin of Topeka, second Vice President; E. H. Bailey of Lawrence, Secretary; I. D. Graham of Manhattan, Treasurer; B. B. Smythe of Topeka, Librarian; R. Hay of Junction City, T. C. Jennings of Topeka, and A. H. Thompson of Topeka, Curators. The Academy, accompanied by a number of leading citizens, visited the Kingman salt wells on Saturday.

In the last number of the *Russell School Signal* Supt. Bickerdyke makes the following well-put suggestions in regard to school-room decoration: "Do not forget that there should be unity in the kind of decorations, not to great a mixing of all sorts of things. Do not spot the walls all over with little things, which really are confusing to the eye. The educating influence of the presence of copies of noble pictures, statues, and views of classic scenes cannot be over-estimated. By sending directly to photographer, at Venice, Florence, and Rome, you can obtain for about a dollar apiece, postage included, large photographs of the great works of art in Italy, and of the classic ruins. The Venetian photographs, colored in water colors, are beautiful scenes. They are of large size, and will cost only about a dollar apiece. Then excellent casts of the busts of famous statues can be bought from four to seven dollars each. Let your graduating class as they pass out from your school purchase one of these photographs or statues and present it as a free-will offering to the permanent

decoration of the school room. Or let the school get up one or two entertainments a year, and purchase one or more of these photographs or statues. In this way a good picture or cast can be added yearly. Besides these works of art, there ought to be good portraits of our poets and other eminent men placed upon the walls of the school room."

THE WEATHER FOR OCTOBER.

The mean temperature for October was 52.21°. The mean for October, as shown by the record since 1859, is 54.49°; October just past is therefore 2.28° cooler than the average. During these thirty years, there have been nine cooler Octobers, —1863, '64, '69, '73, '80, '83, '85, '87, and '88. October of 1869 was the coolest on our record, the mean for the month being 44.83°; 1879 was the warmest, the mean being 61.13°. The highest temperature for the month was 96°, on the second. The lowest, 26°, on the 27th,—a range of 70°. The mean temperature of the observations at 7 A. M. was 44.45°; at 2 P. M., 64.06°; at 9 P. M. 50.16°. A heavy frost occurred on the morning of the 6th, and a hard freeze on the morning of the 27th, ice being formed nearly one-half inch thick.

Rain fell in measurable quantities on three days. The total for the month was 1.42 inches, which is .81 inch below the average of thirty Octobers. The greatest October rain-fall recorded is that of 1877, being 9.07 inches; the least, that of 1874, being but .22 inch.

The mean barometer for the month was 29.117 inches; at 7 A. M., 29.114 inches; at 2 P. M., 29.108 inches; at 9 P. M., 29.13 inches; maximum, 29.40 inches, on the 22nd; minimum, 28.76 inches, on the 29th and 30th; monthly range, .64 inch.

There were sixteen days that were less than one-third cloudy, and fifteen days that were more than one-third cloudy. Nine days were entirely cloudless, and eight were entirely cloudy.

The wind was east thirty-two times, north twenty-seven times, northeast ten times, southeast eight times, south six times, southwest four times, northwest four times, west two times. The total run of the wind for twenty-nine days was 4,541 miles. This gives a mean daily velocity of 156.59 miles, and a mean hourly velocity of 6.52 miles. The highest daily velocity was 297 miles, on the 25th. The lowest, 82 miles, on the 1st. The highest hourly velocity was 26 miles, on the 2nd, between 10 and 11 A. M.—*Assistant Breese*.

THE INVENTOR.

The way of the inventor, like that of the transgressor, is hard. Generally he is a poor fellow of whom it is difficult to determine whether he be a genius or a crank, and usually he has been possessed by devils of both sorts from the early dawn of his intelligence. He is always a crank until he succeeds in producing something of unquestioned merit, and not always a genius then, for often he is robbed of his invention before he has gained the bubble reputation from the public as the originator of a new and useful idea or principle.

Ninety-nine out of every hundred inventors fail to produce anything of value, even though their lives and properties be spent in study and experiment; and the one who has been fortunate in his discoveries may be tricked out of his rights through ignorance of the law and its technicalities or of modern business methods; for his habits of life and of introverted thought have not given him the training that he needs in order to hold his own in the outside world.

Ordinarily the inventor is an inoffensive man. He lives in his ideas and his air-castles, and he seldom attempts to interrupt or to divert the course of the bustling throng; except when young in experience and strongly impressed with a new idea, he has forced it into the current only to see it submerged or wrecked upon the shore. As he grows old, he becomes used to jeers and rebuffs, but his appearance indicates that the iron has entered his soul, for his manner is diffident and deprecating, as if seeking to avert derision: his eye is furtive, as if looking out for a blow; and his countenance is sad as if hope deferred had made his heart sick. It is the fashion to deride him and to quiz his creations, yet he loves the child of his brain as he does the child of his body, and he feels as sharply the sting of insult to the one as to the other. He is a butt for flippant fools, an object of pity to the compassionate, and a prey to sharpers if he discovers anything useful. In general, the world uses him as a ladder for climbing to greater heights of comfort and convenience, then kicks him down as these are reached. Yet, because there is a possi-

ble chance of success, he continues "the fight 'gainst fearful odds" until death relieves him, and, usually, he goes to the grave "unwept, unhonored, and unsung."

TEACH GIRLS SELF-SUPPORT.

As no boy ought to be brought up without learning some business at which he could earn a livelihood, so no girl ought to be brought up without learning the science of self-support. The difficulty is, that many a family go sailing on the high tide of success, and the husband and father depends on his own health and acumen for the welfare of his household; but one day he gets his feet wet, and in three days pneumonia has closed his life, and the daughters are turned out on a cold world to earn bread, and there is nothing practical that they can do. I have seen two sad sights: the one a woman in all the glory of her young life stricken by disease and in a week lifeless in the home of which she had been the pride. As the hands were folded over the still heart and her eyes closed for the last slumber, and she was taken out amid the lamentation of kindred and friends, I thought that was a sadness immeasurable. But I have seen something compared with which that scene was bright and songful. It was a young woman who had been all her days amid wealthy surroundings, by the visit of death and bankruptcy to the household, turned out in a cold world without one lesson about how to get food or shelter, and into the awful whirlpool of city life, where strong ships have gone down, and for twenty years not one word has been heard from her.—*Dr. Talmage, in New York Observer*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

MANHATTAN ADVERTISEMENTS.

R. ALLINGHAM, dealer in Fresh and Salt Meats. Special attention to student trade. Goods delivered free.

W. P. HOLMAN,—Drugs and Toilet articles, Fancy Groceries, Fruits, Confectionery, Nuts, Cigars and Tobacco.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

HENRY HARRINGTON,—Livery and Feed Stable. The best teams in the city. Special care given to stabling and feeding horses for the public.

SWINGLE & VARNEY—Book Store. Full line of School and College text-books, school supplies, etc. Call and see us. You will always have a welcome. 320 Poyntz Avenue

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

LESLIE H. SMITH, Boots and Shoes, 302 Poyntz Avenue, first door west of Stingley & Huntress. A full line of Rubber foot wear of the best quality at the lowest prices. Mens' all Solid Leather Dress Shoes, \$1.65. Ladies' Fine Dongola Button Shoes, \$2.00. Reliable goods at low prices.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

TENDENCIES IN DRESS.

TO ascertain the general direction of a stream, we must trace it from the source. The many twists and bends would surely deceive us if we did not take an extended view. The necessity for a large survey is even more obvious when one is endeavoring to discover tendencies in civilization; for it is universally admitted that progress is made seldom, if ever, in a straight line, but almost always turns upon itself, and hence may be thought of as proceeding along the lines of a spiral. Development in dress furnishes an excellent example.

The dress of the Anglo-Saxons when they took possession of England in the fifth century was simple, and adapted to their hardy, vigorous life. To describe it very briefly,—the men wore a sleeved tunic varying in length, but generally comparatively short, partly open at the sides and confined about the waist by a girdle. Over this a cloak was worn. They used hose for the lower limbs, wore caps pointed at the crown, and shoes or low boots. One peculiarity of the male attire which seems to have only æsthetic reasons for its existence, was the cross gartering of their hose, or their simply covering the legs below the knees with cross-swathing bands, fastened at the knee. The females wore long tunics, or gowns, made loose and high, and girt in about the waist. Over these they had shorter tunics, often much enriched, and with wide sleeves. Over all, large hooded mantles were thrown. Coverchiefs for the head were often used in place of the hoods.

The above, then, is the foundation of our modern attire, as the Anglo-Saxon language is the substratum of modern English. Now, neither this language nor dress had an opportunity to develop on its own lines, for both were subjected to adulteration, admixture, which resulted in great modifications. The conquest of Anglo-Saxon England by the Normans was in the eleventh century, but the final blending of the two styles of costumes was not completed until the thirteenth. From thence on ostentation in dress, especially on the part of the nobility, was the rule; simplicity, the exception. This culminated in exceedingly fantastic attire during the period of turbulence just preceding the establishment of the Tudors in the fifteenth century. It is conjectured, and with good reason, that the wild disorder of the times had much to do with the marked peculiarities of dress. It is impossible for the taste to remain unaffected by environment.

The seventeenth century is the period of transition from ancient to modern costumes. Now the clothing begins to be fitted more closely to the figure, and applicability to the needs of life receives greater consideration. We note two prominent influences in bringing about this change. One was the larger and freer life that was opening before humanity; and this was the result of the discovery of new lands, the organization of new enterprises, the reformation of old, and the suggestion of new ideas. Another influence was the Puritan movement, which was exerted in the direction of plainness, the elimination from dress of everything unnecessary or that tended merely to attract attention. This change was so violent that naturally there was, at least among the well-to-do, a reaction commencing from the time of the Restoration in 1660. This, however, was but temporary, and soon the gradual modification of the costume toward its present style again began. Of course, there have been relapses, such as the foolish wigs, etc., of the men, and the various dress arrangements of the women. Not until the beginning of the present century can we claim to have discarded

the stiff, formal, artificial attire so common in the eighteenth century.

Are we still modifying our dress? and, if so, in what direction do the changes tend? All will agree on the answer; for everyone must have noticed among other things the revolution that has taken place in summer garments. Starched clothing has been superseded by neat, comfortable flannels, and the ladies are making great progress in devising dresses that will enable them to freely row, run, and climb mountains.

What, then, is the ideal costume toward which this development is moving? We could not give it in detail, but we are sure it will have at least three elements: it will follow in general the contour of the figure; it will be æsthetically satisfactory; it will permit unrestrained movement of every part of the body.—*Prof. White.*

NOTES FROM THE LIBRARY.

AMONG the more important recent additions to the College Library are Justin Winsor's *Narrative and Critical History of the United States*, 7 volumes; Arthur Young's *Annals of Agriculture*, 20 volumes; Young's *Farmer's Tour in the East of England*, 4 vols., calf; *Transactions of the London Horticultural Society*, 10 vols.; *The Horticulturist*, 9 vols., calf; 60 volumes, nearly completing the set of *Eclectic Magazines*; Poole's *Index to Periodical Literature*, first supplement, covering the period from 1882 to 1886, inclusive.

Poole's *Index to Periodical Literature* has proved to be the most valuable help to the student in our library. The *Co-operative Index*, published quarterly, brings the book down to within a few weeks of the present time. As our library is made up so largely of bound sets of periodicals, the index is a most admirable key to many of the treasures which it contains. At present we are not indexing in the card catalogue any of the articles already indexed in Poole. This, in the interest of economy, saves many times the cost of the index in a single term.

Among the sets of bound periodicals, complete or nearly so, now found in the library are the following: *Atlantic Monthly*, *Scribner's* and *Century*, *Harper's Monthly*, *Scribner's Magazine*, *Nation*, *Science*, *The Garden*, *Gardener's Chronicle*, *Gardener's Monthly*, *Edinburgh Review*, *American Agriculturist*, *Popular Science Monthly*, *Eclectic Magazine*, *Forum*, *Journal of the Royal Agricultural Society*, *Good Housekeeping*, *Transactions of the American Chemical Society*, and *Canadian Entomologist*.

Partial sets of the *American Architect*, *Art Journal*, *Inland Architect*, *Engineering Journal*, *Journal of the Chemical Society*, *American Journal of Science*, *North American Review*, *American Naturalist*, *Nature*, *Literary World*, *Critic*, *Scientific American*, *Magazine of American History*, and many others, are also on hand.—*Prof. Lantz.*

A VALUABLE OPINION.

The opinion of Edward Everett as to the value of a good education will be repeated many times as the years pass on. He said that it consisted in an ability to read the English language well, to write with dispatch a neat, legible hand, and be master of the first four rules of arithmetic, so as to dispose at once, with accuracy, of every question of figures which comes up in practice. He says: "I call this a good education, and if you add the ability to write pure, grammatical English, I regard it as an excellent education. These are the tools." There is a great deal of wisdom here, which some who crowd our courses of study with a multitude of branches should notice.—*The School Journal.*

TRUST AND ANTI-TRUST.

The *Rural World* offers implied censure for a quoted paragraph in the *INDUSTRIALIST*, given without note or comment, merely to show how the efforts of wheat-growers to combine for control of the supply looks to the rest of the world. And yet the following statements of Mr. Walter N. Allen, President of the Farmers' Federation, could hardly be strange if the farmers were trying to form a veritable wheat trust:—

"We are not here for the purpose of denouncing trusts and combines, but to meet the issue of new systems and conditions in trades. Realizing our individual feebleness and the great importance of unity of action as a class, we have been called together to consider the proposition to delegate to a power of our own creation the exclusive right to market the products of our farms, and to take such measures as will afford present relief and future protection to the agricultural interests of the Mississippi Valley.

"But the remedy for all this is founded in a company of your own creation, with a centralized power and concentrated business energy; and with its representative structure, can give relief with only two per cent of the farming population to be included in the organization. In fine, the plan proposes a consolidated agency, for the sale and marketing of the product of the Mississippi Valley; and through this agency regulate shipments, control the supply in the public markets, and thus secure the general improvement in the prices of farm products."

We quote again from one of the fairest dealing papers, the *Advance*, touching the same convention:—

"The anti-trust law passed by the Missouri Legislature is declared by the Secretary of State to be successful. Of the 7,000 corporations addressed, and which were required to make the affidavit required by the law, 2,500 have complied with the law. It is also said to have broken up the millers' trust, the tobacco trust, and other trusts which were opposing the people. In this connection it may be mentioned that the wheat-growers' convention which met in St. Louis last week formed an association, one purpose of which is to control the wheat market. It was said by one of the principal speakers that the low price of wheat was due to manipulation, not to over supply or lack of demand from abroad. If this be true, the farmers of the West are certainly justified in resorting to some plan of relief, but how this is to be done without setting up another combine, or in any other way than by freeing the market of all manipulation, corners, and fictitious transactions, is not clear."

SANITARY SCIENCE.

But in all this progress nothing is more noticeable than the degree to which hygiene has been developed, not only in that broad range which entitles it to a separate name, but as a part of the practical application of medicine to the restoration of health. It is not only a preventive, but a directly applied art in its clinical aspects. It is now probable that quinine and many other remedies act mostly by the restraint which they put upon the development of microphytic life. The recent prescription advocated by Dr. Sternberg in yellow fever, and used by many with seeming success, relies chiefly on the corrosive chloride of mercury, which has long been known to have valuable antiseptic qualities. It would not be difficult to show how, in various departments of therapeutics, we have come largely to rely on this class of remedies.

But besides this, the progress of sanitary science and art has established for itself a specialty of its own. The prevention of disease is a grander attainment than its relief or cure. We are but at the beginning of possibilities in this direction that are far beyond the estimation of the people. If today all that is known as to the preventable agencies that can be employed could be applied by an efficient sanitary organization and enforcement, we should be able to make a record of saved lives that would materially affect our increase of population. It covers a field which brings into use for purposes of health many different professions, and makes of our knowledge saving knowledge in a health and life-giving sense. What is now especially needed is that there should be more thorough and exact training in all that relates to sanitary administration. Men are put in position as heads or members of health boards who have no available knowledge of the subject which they represent. We can bear the sensational literature which is rapidly increasing. We do not wonder at the diffuse talk of theorists who always find a

cause for everything, and who are sure that sewer gas causes all the typhoid fever, that measles are owing to accumulation of decaying straw and refuse, and that diphtheria is owing to decay or dampness. Nor do we wonder at those scientists who have never practised medicine who, because they have been enabled to cultivate a bacillus in a culture fluid, conclude that therefore it is communicable from man to man, and so, in the face of the concurrent testimony of physicians who practice, fulminate through some political health board a series of rules such as that the dishes on which one suspected of consumption eats should be washed in boiling water as soon as possible. Medicine is already suffering in this age of curiosity and speculation from rapid indulgence in new remedies, and hygiene is also suffering from the rapid formulas and rules of those who cannot prove what they affirm. We rejoice in rapid progress, but it too often thrusts us against those who make whole errors out of half truths or who accept as proven what is only a hypothesis.—*The Independent*.

ECONOMY OF TIME.

There never has been a period in the history of the world when such incentives to an economical use of time were offered as at present. In the matter of making time into money, it is well known that unrivaled opportunities exist. Not only are the treasure places of the earth being discovered, so that any one who has energy and insight may go and find some new mine of silver or gold; not only is the earth becoming more fertile and more productive than of old; not only may nature's laws be made to labor for man in the distribution of the products of man's toil; but countless combinations are now possible, increasing the opportunities for amassing wealth a thousand-fold.

Whoever, by faithful use of his early days, will fit himself to take advantage of these opportunities may have as much as he will of riches. In the matter of acquiring learning there are incentives to an economical use of time which would have seemed glorious to men of any other age than this. In science, art, literature, music, in any of a thousand departments of learning, it is possible to go very far, and to find every successive step of the way of increasing profit and delight. Or, if the task of any person, meditating in what way he may best spend his days, should lead him in the direction of serving his fellow men, either in the professions, in contributions to the literature of his time, or in the public service, never before were there such fruitful fields open before the ambitious and aspiring as there are today. In all directions life is rich and promising to the man who will use his hours well.—*Providence Journal*.

A BUSINESS VIEW.

It is notorious that the average farmer is careless in the use of his tools. A ride over any country will show many binders left to stand in the field where the last sheaf of grain was cut; or the plow standing with the mould-board rusted, while the wood-work is being damaged by wind and rain. When the time comes for use next season these implements will need repairs which could be saved by a timely use of care. All the time these tools are standing out, bringing loss to their owner, he is fretting over hard times, cursing the mortgage he put on his farm or stock to buy the tools, and venting his ire in demands that the Legislature reduce the interest rates, or give him an enforced extension of the time to pay. Loan companies which have mortgages on farms where tools are found standing in the weather through the winter, should exercise an oversight on such property, and suggest in forcible terms, if mild measures would not answer, that the owners should take better care of the property. The farmer who is found taking good care of his property, of his stock, fences, and tools, is not the one that is in default with his interest, if indeed he has any to pay. Such men will more likely be found to have no mortgage on their farms. It is merely the act of a prudent banker looking after his security, to advise the farmer to care for his tools, and where a loan company will do this, it will find itself carrying less back interest, than when it neglects the precaution.—*Kansas Financier*.

An ingenious device for preventing the odor of cooking from escaping into a room has been patented. The invention is of the simplest possible description, and consists of a hood with folded sides or leaves, which covers the side of the stove. The odor passes into the hood and is carried directly into the chimney.—*Exchange*.

KANSAS THRIFT.

A Mulvane man is shipping corn to New Hampshire.

The people of Burlingame are agitating the question of waterworks.

The new city directory shows a population for Salina of over ten thousand five hundred souls.

Isaac Graham of Paola last spring had seven hives, which have cast off fifteen swarms, of which he sold four, losing one. From the remaining seventeen, he has taken over four hundred pounds of honey.

The Emporia canning factory put up, during its season just closed, 25,000 two-pound cans, and 217,000 three-pound cans of tomatoes; also 150,000 cans of corn. The season has been a very successful one.

The soldiers' monument at Mound City, Linn County, unveiled last week, commemorates the battle of Mine Creek, a battle of the war fought on Kansas soil. The monument cost \$2,500, the money being appropriated by Congress.

There are five hundred cars of potatoes on the Central Branch which cannot be moved at present on account of the low price they bring. Oats at some points are as low as ten cents per bushel, and corn is worth ten to fifteen cents, according to locality and grade.

The city of Cherryvale voted \$5,000 to aid a local company in prospecting, and the drill is now at work trying to get down to hidden stores of wealth. The prospect hole is now 430 feet deep, and the salt water runs out of it, but nothing more valuable has yet been found.

According to the *Marquette Tribune*, every indication points to an early building of the Marquette and McPherson Railroad by the Missouri Pacific to close the gap between the main line there and the Newton and Eldorado branch, which terminates at McPherson.

Smelting works are being erected at Turner Station, seven miles from Kansas City on the Santa Fe road. Work on it is being rushed, and it will be one of the big enterprises of the West. A beautiful tract overlooking all the surrounding country, and immediately adjacent to the smelter, has been platted and named Lovelace.

Perhaps less than 500 people in Wyandotte County are aware of the fact that the smelting and refining works at Argentine is the largest institution of the kind in the world. Such is the case, however. This smelter furnishes one-fifth of all the silver lead smelted in the United States. It does annually business to the amount of \$18,000,000. This is over one and a half times the assessed valuation of this County. This plant has in eight years grown from a very small beginning to its present enormous proportions. Every year additional works and facilities are added. The wages paid for its labor are the highest paid anywhere in the United States, the average daily wages being about \$2.25.—*Kansas City Gazette*.

The 3,000-foot well, which a Kansas City company has the contract to drill in Paola, has come to a standstill for a short time, as the drillers have lost the drill nearly 500 feet down. They have been unsuccessfully fishing for it for over two weeks. The Paola Natural Gas Company works steadily with two drills and three derricks. They have struck another good lubricating oil well in the Russell field, east of Paola, and several good gas wells. They have also opened a new field and struck oil southwest of Paola, between Paola and Ossawatimie, where they are now putting well No. 2. All the stores, hotels, restaurants, and bakeries are heated and lighted now by natural gas; also about half the residences are heated by it. The Ossawatimie Gas Company is furnishing the heat and motive power for the large State Insane Asylum, where the outlay for coal used to be from \$8,000 to \$10,000 a year.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Professor and Mrs. Hood are rejoicing in the possession of a second son, born November 3rd.

Mrs. Winchip presented a paper this week before the Domestic Science Club, entitled, "Dress as an Indicator of Character."

Prof. Kellerman gave a talk on "The Nervous System" before the teachers of Riley County, yesterday, at District No. 6, Manhattan.

Several members of the Epworth League, which held its district convention at Manhattan last week, were visitors at the College Monday morning.

Senator Plumb will visit the College sometime this month, probably between the 15th and the 20th. We may hope to hear from him in the Chapel.

The McPherson *Anzeiger*, German, publishes a lengthy description of the visit of its editor to this College. He was greatly pleased with all he saw.

Prof. Brown's new charts have had a frame provided for them in the north corridor of the main building, where the singing classes may have the benefit of them.

It is a matter of congratulation that the recent examination resulted in fewer failures than ever before; while the work done is much in advance of that of past years.

Mrs. Kedzie is this week in attendance upon the Social Science Convention at Wichita. As representative of the Committee on Education, she presents a paper entitled "Education for Industry."

The pay-roll for students and others paid by the hour amounts for the month of October to \$486.18. Of this \$76.50 is paid for instruction in various classes by post-graduate students. There are 102 names, only three of which do not belong to students. The smallest amount received is fifteen cents, and the largest forty-three dollars.

Prof. Shelton has gone this week upon a second tour of inspection through western counties where crops have suffered from drought. He will visit the Government Experiment Station for grasses at Garden City, to notice results of its first year's trial of many varieties. Dr. Vasey, Director, has promised every facility for his examination.

The American Protective Tariff League, 23 West 23rd St., New York City, sends a copy of the Prize Essay for 1889, with an announcement of their prizes of \$150, \$100, and \$50, respectively for the best three essays of college students upon the Application of the American Policy of Protection to American Shipping engaged in International Commerce. The essays must not exceed ten thousand words, and must be sent over assumed name, with a scaled certificate of standing in College.

Prof. Olin lectured in Chapel yesterday afternoon on "Time-keeping." He described at some length the numerous crude devices by which time was marked in ancient days, and contrasted them with the well-nigh perfect appliances of today, of which the famous clock in Harvard Observatory was cited as an example. The speaker made reference to the calendars of ancient times, when a year might be shortened or lengthened by the caprice of a ruler. The lecture abounded in happy hits which won for the speaker hearty rounds of applause.

Manhattan is well represented in the world of periodical literature. No less than nine periodicals are now issued in this little city of 3,500 people. The *Republic*, daily and weekly, Republican in politics; the *Nationalist*, weekly, Republican; the *Mercury*, weekly, Democratic; the *Signal*, weekly, Labor Union; the *INDUSTRIALIST*, weekly for the College year, organ of the State Agricultural College; the *Telephone*, monthly, representing Congregationalism; the *District News*, monthly, representing Methodism;

the *Presbyter*, monthly, representing Presbyterianism; the *School Bulletin*, monthly for half a year, distributed free by the County Superintendent of Schools.

GRADUATES AND FORMER STUDENTS.

C. D. Williams, student in 1886-7, writes from Silver Lake of his intending to spend a few weeks in Manhattan soon.

H. S. Willard, '89, teacher at Keats, read a paper on physical training before the Riley County Teachers' Association, November 2nd.

The *Alma News* publishes a lengthy article on Oklahoma from the pen of Dr. Buchli, '84, who made a trip through that country in September.

C. L. Helmick, student in 1882-3, after several years of work in the Y. M. C. A. at various places in this State, left this week for New York, expecting soon to sail for Africa where he will be a pioneer missionary in the Soudan.

Papers were on the programme of the meeting of Riley County teachers, yesterday, in District No. 6, from the following graduates and former students: A. B. Kimball, '89, Mary G. Lee, '89, Nellie Gilbert, Mollie McIlwain, and Laura Livings.

D. E. Bundy and R. U. Waldraven, '89; O. L. Utter, '88; A. B. Hulit, Second year in 1885-6; E. H. Beckwith, First-year in 1888-9, and others whose names we did not learn, attended the district convention of the Epworth League in Manhattan, last Saturday and Sunday.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. F. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Cottrell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

CHEMICAL LABORATORY, November 1st.

The Scientific Club was called to order by President O. P. Hood. The minutes of the last meeting were read and adopted as published in the *INDUSTRIALIST*. On motion it was decided to elect Chairmen for the different sections by ballot. They were then elected as follows: Lieutenant Morrison, Chairman of Physics and Engineering; Assistant Breeze, Chairman of Chemistry; Prof. Olin, Chairman of Ethnology; Prof. Kellerman, Chairman of Biology; Mrs. Kedzie, Chairman of Domestic Economy.

Assistant Swingle then presented the subject, "Diseases of Wheat." Wheat is subject to many and various diseases. The most common and the most injurious are known as "wheat rusts," "mildews," and "smuts."—"stinking smut," and "loose smut." All the "rusts" appear first as a yellow coating and later, black. They all have three stages of development, similar to those of the butterfly. Unlike the butterfly, the "rusts" can omit one stage and still maintain an existence and propagate itself. The winter spores are provided with a thick and hard covering, and are often found on the barberry bush. In our climate, these spores can live on the young wheat plant; or the winter stage may be omitted without injury to the "rust." When the winter stage is omitted, the summer spores imbed themselves in the leaves of the young plant, and there remain dormant until early spring, when pores are formed as early as March. The "red rust" grows under the surface of the leaves and stems, and at last breaks through. This is the time that the "rust" is said to "strike the wheat," and this too is the time that it spreads most rapidly. These "rusts" are very difficult to treat, as they grow on grasses and oats as well as wheat. The "mildews" spread rapidly. They provide themselves with a winter spore as do the "rusts." But like the "rusts," the "mildews" can live and propagate without this winter stage. The wild barley-grass serves as a foster plant for the "mildews." The smuts are of two kinds, commonly known as the "stinking smut" and "loose smut." The stinking smut is the most obnoxious, as its pungent odor penetrates the wheat and flour, thus ruining it for use. Some of these diseases can be absolutely prevented, others partly. To prevent "smuts" do not plant wheat on the same ground successively; plant late in the fall, but plant varieties that mature early, as most of the damage is done in the last two or three weeks. "Mildews" may be prevented by spraying, but whether this can do so as to "make it pay" is very doubtful. "Smuts" can be absolutely prevented; wheat "smut" by soaking the seed in blue vitriol is entirely killed, while both oat "smut" and wheat "smut" is killed by soaking the seed in water raised to 150° F. This heating does not injure the seed in the least. Assistant Willard presented the subject, "The Kingman Salt Mine." The salt is both mined and produced by evaporation. In the evaporating process the water is forced down a pipe which is surrounded by a larger pipe. It comes in contact with the vein of salt, and becomes saturated salt. The same force drives it up between the outer and inner pipe, back to the surface. The saturated water is then run into evaporating pans, to which heat is applied. The heat is artificial, and in some cases is applied at the bottom, while in others it is applied by means of steam coils. Mr. Willard exhibited many specimens, some of which were of a bright flesh-red color, and others mottled. Found a specimen of anhydrite. This mineral has not been found in Kansas before to Mr. Willard's knowledge. It is much harder than gypsum or marble. It is of no economical importance.

A. A. Mills, "Ampere's Theory of Magnetism." The theory, briefly stated, is, that each molecule of a magnet is a closed circuit around which travels a current of electricity; that the currents of a magnet are all parallel to each other. All the currents beneath the surface are neutralized, while those on the surface are not. So the magnet may be considered as having a current of electricity running around it; that is, that the magnet is equivalent to a solenoid. The primary laws of electricity are, that currents running in the same direction at-

tract each other, while currents running in opposite directions repel each other. If the north pole of one magnet be placed by the south pole of another magnet, the currents that are closest to each other are traveling in opposite directions, but yet the magnets attract when placed in this position. This seems to be an exception to the general law, and if so, would disprove Ampere's theory. But I found by experiment that solenoids act in the same manner when similarly placed. So no exception can be taken to the theory, but there appears to be an exception to the general laws of electric currents. Can give no explanation for this apparent exception, but will suggest that it is due to one part of the magnetic field being superimposed on another part, thus decidedly changing the "lines of magnetic force."

A. A. MILLS, Secretary.

HAMILTON HALL, November 2nd.

The Society last meeting added the names of W. J. Towne and J. Lamm to the rapidly increasing roll. The programme of the evening was opened by the reading of "The Roman Sentinel of Pompeii" by Chas. Manly. F. M. Linscott performed his duty by reciting a declamation in a very commendable manner. As one of the debaters was absent, F. A. Waugh was chosen as an assistant for the affirmative. The question chosen for debate was, "Resolved, That a monarchy is the strongest and most stable form of government." M. G. Riddell opened this question by taking up the growth of monarchies both ancient and modern; by outlining the growth of some of the republics of ancient times, thus showing how weak they were compared with the monarchies. A. F. Cranston was the second speaker. After giving a synopsis of the forms of monarchies and republics, he spoke of the fact that the great monarchy of Rome was simply the stored-up energy of the 200 years of the Republican government. F. A. Waugh was the second speaker on the affirmative, and L. C. Criner argued the question on the negative. The Judges, W. J. Towne, A. T. Ellsworth, and E. M. Blachly, decided unanimously in favor of the negative. The first on the programme after recess was a song, by W. J. Yeoman. The music was composed by a Kansan, M. L. Graves did very nicely with his declamation. Geo. L. Melton selected as the subject of his discussion "The growth of short-hand writing." L. D. Parker in his discussion contrasted the characters of Alex. Hamilton and Aaron Burr. E. M. Blachly gave some valuable hints in regard to field ornithology. The last on the programme was Marshal Pope, who told of some of the explorers who have tried to reach the North Pole. The discussions of the evening were all very good. C. P. Peterson was proposed as suitable to become a member of the Society. G. W. Waters, a charter member of the Society, favored the Society with a very complimentary speech. After assignment of duties, the Society adjourned.

C. E. C.

SOCIETY HALL, November 2d.

The Webster Society was called to order by President Martin. The names of C. O. Whitford and Wm. Curry having been presented, these gentlemen were elected and initiated members of the Society. The debate was on the question, "That the Government should own the railroads." H. V. Rudy and J. Frost presented the affirmative; and J. W. Ijams and W. P. Tucker, the negative. The affirmative stated their opinion as being thus: should the Government own the railroads the people would then have the control, and that, similar to mail system, the roads need not be used as a source of revenue but only impose such rates as would defray expenses. They would then be more of a public benefactor. The negative considered the enormous outlay, estimated at over thirty-two billions, the purchase of American railways would involve. Then the great trouble of management under the present method of "to the victor belongs the spoils," because of the myriads of officials it would necessitate. The negative won the decision. The literary programme was as follows: Essay, J. B. Harman. Declamation, "The Jews," E. C. Pfuetze. Essay, J. E. McLeavy, about ships. J. S. Stingley read a humorous selection about "Corns." The music was furnished by Messrs. Tucker, Pugh, Wimer, and Selby. The rules were then suspended and unfinished business was taken up, and following this new business. There have been some negligence and disorder on the part of five members, and these persons were brought before the Society for trial. The trials were long and tiresome, but there is evidence that some good was effected.

H. D.

SOCIETY HALL, November 1st.

The Alpha Beta Society was called to order by President Secrest. The Society then listened to a beautiful song entitled "What is the Song the Swallows Sing?" by Maud Parker and Julia Greene; Lillie Dial, committee. Martha Cottrell led in devotion. Roll-call. Mary Brooks and Fairy Strong were initiated members. Elizabeth Hoyt read an interesting essay about Utah. Debate, question, "Resolved, That the national banking system should be abolished." R. D. Whaley and W. W. Hutto debated the affirmative; J. N. Harner and Sadie Moore debated the negative. The debate was interesting; but the speakers were substituted on short notice, and it showed lack of preparation. The Judges, Misses Marlatt and Bachelor, and Mr. John Davis, decided unanimously in favor of the negative. G. L. Christensen presented the *Gleaner*; motto, "Society first, then base ball." It was rather long, but strongly moral in its tone. Recess. Music by the congregation. Extemporaneous speaking. Under the head of new business, the Society resolved itself into a committee of the whole, with W. W. Hutto in the chair. An interesting discussion then ensued as to whether we should hold a moot court session or not. The moot court carried, and a committee was appointed to arrange a programme and fix the time of meeting. Assignment of duties. Report of Critic. Reading of the minutes. Messrs. Smith and Hutto and Misses Hopkins and Dial favored the Society with an interesting song entitled, "Old Mother Hubbard." Adjournment.

G. L. C.

SOCIETY HALL, November 1st.

The Ionian Society was called to order by President Waugh. Miss Selby was initiated. The programme opened with an instrumental solo by Maud Whitney. Declamation by Miss Pender. An interesting essay was read by Dora Skinner. The *Oracle* was presented by Doris Kinney. Effie Gilstrap chose for the subject of her discussion, "Resolved, That a city is better than a country town for a University." It was afterward discussed by different members of the Society. The programme closed with music, a duet, by Misses Short and Vail, Miss Hederstrom at the organ. Miss Vail reported as to the place of procuring Robert's Rules of Order. After the discussion of several subjects the rules were suspended and the Society returned to the order of propositions for membership. The name of Alda Howell was proposed. Miss Whitney then sang a solo. Report of Critic. Adjournment.

S. E. H.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses. Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The State Board of Health will hold its annual meeting at Lawrence, December 4th and 5th.

The teachers of the upper part of Riley County held an enthusiastic institute meeting at Riley, November 2nd.

The Topeka Medical College, which has been in process of organization for several months, will probably become a part of the new Methodist University to be built at that place.

Prof. J. H. Canfield of the State University will deliver a lecture on "The State and Education," at the Northwest Kansas Teachers' Association at Concordia, Nov. 28th, 29th, and 30th.

Supt. L. McKinley of Haskell County was on the Santa Fe train which suffered a wreck near Howell Station. He was not seriously hurt, though quite sore from the tumbling to which he was subjected.

The Twenty-third Annual Meeting of the Kansas State Horticultural Society will be held at Paola, Miami County, on Tuesday, Wednesday, and Thursday, December 3rd, 4th, and 5th, 1889. Exercises will open at 10 o'clock A. M., on Tuesday, at the Grand Opera House. A Committee of Reception will meet attendants at the railway depot, and assign them to places of entertainment. It is expected that the railroad companies will pass all attendants over their lines in the State, at a full fare to the meeting, and return same at one-third rates. The discussion upon various topics will be open to all interested, and anyone desiring the attention of the Society upon any special subject may report the same to the Committee on Programme, who will give due consideration. The present status of Kansas horticulture demands the attention and earnest consideration of its friends; and it is highly important to its future success that the practical men of the State assemble *en masse* for a thorough deliberation of matters relating thereto. All local and county horticultural societies are requested to be represented in the meeting by a delegation of their members. An opportunity will be given for an exhibit of specimens of fruit which may be in season—of trees and plants, and garden vegetables of special merit—and will be placed in charge of a competent committee who will report to the Society on their findings. An exhibit of seedling fruits of a promising character, and of newly-introduced sorts of high merit, as an acquisition to the present recommended list, is desired, and all such will receive due attention by the Society.

Supt. J. H. Lee of Riley County has issued the first number of the *School Bulletin*, a monthly publication devoted to the educational interests of Riley County. In the introductory article the Superintendent says: "It is offered without price to those for whose reading it is published. The publication of it is an experiment. It is attempted for the following reasons: A large percentage of the people of this county seem utterly careless about the welfare of our public schools or the education of their own children. They do not seem to realize that the world is moving, the conditions of life in it rapidly changing; that a good common-school education is becoming an indispensable preparation for an American citizen's well-being, credit, comfort, and safety. Failing to secure it for their children, they are dooming those children to a life of comparative debasement more shameful, a social position more humiliating, a liability to suffering and loss more distressing, than they themselves have ever known. Their apathy is the result of inattention to facts—startling, appalling facts. It is only necessary that these facts should be properly brought before them, when, if they have a spark of parental love or pride, their hearts will begin to burn with zeal for the welfare and improvement of the schools where alone the children can receive an education. We have for years been trying to reach this apathetic people by lectures, patrons' meetings, and teachers' meetings. We have thus far failed in the majority of cases. The present little experiment is one more humble attempt." The mechanical make-up of the paper is first-class; in fact, we have not seen a better printed periodical of the kind since George Martain suspended the publication of his *Kansas School Journal*.

DRAUGHTING IN MECHANICS.

The importance of exact drawings to the mechanical world today is well set forth in the following extracts from a paper published in the *Scientific American*:—

"Let it be remembered, then, that the workshop, though necessary for the practical embodiment of the invention, is yet distinct from the invention. The rule of true progress here is plain. The invention must first be clearly conceived and plainly drawn on paper, clearly in detail, carefully and studiously designed according to the principles governing the particular construction; in short, it should be wholly created and visibly expressed in every detail, by one who is master of the subject, before it is put into the hands of a single workman. Most assuredly it can be said, with emphasis, no matter how great or how small the new work proposed, construct it first on paper!"

"Progressive manufacturers and machinists everywhere are every year recognizing more forcibly the value of this method, and, recognizing it, are growing richer. Look into our best workshops of today; the great foundries and machine works that turn out our exact machinery, our fine locomotives, our floating palaces; in all you will find—not "a rule of thumb" and endless experiment, but a well-constituted, thoroughly superintended drawing room. Here the work is first really constructed, on paper, the varied problems carefully thought out, the many parts fitted and proportioned to their several functions; then the various artisans and workers are given their parts, and the whole structure grows uniformly, rapidly, to perfect completion. This is the new way. It has come to stay.

"It might be interesting to some to have described the actual working routine of one of our largest and most successful manufacturing establishments—the great locomotive works, whose world-wide reputation has made the American locomotive famous as a competitor on almost every line of railroad in the civilized world.

"Let us, then, take a swift glance through the said establishment, beginning with the draughting room, properly the starting place for our inspection. Here, in a well-lighted, ample apartment, are a number of draughtsmen, many of them brought up in the service. These are under the supervision and direction of a superintendent, who originally decides upon the plan of each locomotive to be built, estimating its capabilities and requirements. Instructions and specifications are then given to a draughtsman in charge, who carefully constructs on paper elevations and sections necessary to the complete locomotive. The detail drawings are then executed on stiff cardboards, or other materials suited to stand shop wear, and after passing satisfactory inspection of the examiner of drawings, are given out, carefully numbered and registered, to the respective shops. No work can be done in any of the shops until this is done, thus manifesting the high importance which this successful establishment attaches to correct drawings as the starting point for all construction.

"In the shops, the many details are each carefully wrought out, in strict conformity to the drawing, and as completed, sent to the erecting shop, where, under competent foreman, the various parts are rapidly adjusted, each falling into its proper place, and in an incredibly short time the completed locomotive is breathed into by the breath of its steam life, and starts upon its career, a giant of force and a monument of engineering skill.

"Time was when a complete preliminary drawing was hardly known in a machine shop. Then, men blundered, and blunders are always costly. Time will be soon, when a machine shop without its drawing room, its superintending engine, will be but a lingering reminder of an experimental age before men had learned the true source of progress and wealth."

GOOD MANNERS IN SCHOOL.

Teachers of good manners generally have pupils of good manners. Theirs is the power of example, of consideration, of kindly rebuke of discourtesy, of kindly appreciation of courtesy. They like to praise rather than to blame, and they know that it goes further, even if there is but little that they can find to praise. Gentlemen and gentlewomen are not easily made. The rudest boys can be taught to be less rude, and ill-behaved girls can be won to comparatively good behavior. This is smoothing the surface and making it fair. But for manners that are worth anything the teacher knows he must go deeper. It is by training the will and the affections, by purifying and elevating motives,

by stress on the duty that is nobly done, and so making character the one chief object, that the sources of good manners are reached. The standards of our schools are intellectual and disciplinary. They ought to be moral. Then the veil will be lifted between teacher and pupil, between pupil and pupil, and reverence, kindness, disinterestedness, will come forth in all their gracious forms, and manners be glorified. It is a pity that so much of this higher work for children should have to be done in school. Home is the true ground for it. There the seed is naturally sown, and there it should bear fruit to spread far and wide and enrich the school as well as the community. But the places from which the majority of public-school pupils come are incapable of training them, and it is upon their teachers and their more fortunate schoolmates that they must draw for the help they most need. Give them sympathy, give their helpers sympathy, and lend a hand to every possible opportunity of making them the men and women on whom others in their turn may be able to depend hereafter.—*Dr. Samuel Eliot, in Boston Journal.*

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentages and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

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FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

HENRY HARRINGTON,—Livery and Feed Stable. The best teams in the city. Special care given to stabling and feeding horses for the public.

SWINGLE & VARNEY—Book Store. Full line of School and College text-books, school supplies, etc. Call and see us. You will always have a welcome. 320 Poyntz Avenue

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSSTRUP, Proprietor.

LESLIE H. SMITH, Boots and Shoes, 302 Poyntz Avenue, first door west of Stingley & Huntress. A full line of Rubber foot wear of the best quality at the lowest prices. Mens' all Solid Leather Dress Shoes, \$1.75. Ladies' Fine Dongola Button Shoes, \$2.00. Reliable goods at low prices.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices. —"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

CARE OF FARM MACHINERY.

NO other crop is so certain as is that crop of suggestions which, at this time of year, appear in all sorts of papers, advising farmers to take care of their machinery. The successful farmer advises for protection of tools because he knows from experience it pays. The thrifty business man, who from car windows sees rusty plows, rotting threshers, and rickety reapers, advises on general principles, knowing that shiftlessness cannot pay. The mechanic, who has a fellow feeling for the product of his mind and muscle, advises for protection because he knows it to be useless to furnish the farmer better machinery until he learns to care for it better. The designer of agricultural machinery has met this carelessness of an expensive tool in two ways. He has tried to eliminate all delicate parts from every tool for the farmers' use, and the result is a machine which will do work only in the roughest way. Other tools are made in an acknowledged shiftless way, the excuse being that even then it will last as long as a farmer will allow any machine to live. There are some particularly perishable parts of a machine which cannot be eliminated from the design, which should at least be attended to.

All leather and rubber belts should be taken off, coiled, and laid away. A leather belt should be kept soft and pliable, as well as a harness. This can be done by oiling or greasing slightly. Canvas conveyors are soon rotted out, if not protected during wet weather. If there is a portable engine on the place, the boiler should be covered with paint each year. Its hould be emptied of water completely, and dried by a very light fire just sufficient to warm the tubes; every opening to the boiler should then be closed. Each year furnishes a list of threshing engine boiler explosions which exceeds any other class of explosions, and this is due largely to the erroneous idea of the average country fireman, that "you can't blow up a boiler if she has plenty of water in her." Examination would probably show in most cases of explosion that the boiler shell was rusted to half its original thickness. Cases are known where a 5-16 shell had been reduced to 1-16 by rust. The engine cylinder should be drained, and if possible, examined and dried. The exposed parts should be thickly coated with heavy oil or tallow.

It is often stated that the farmer has, as yet, no suitable place to house his tools, that being one of the luxuries coming. Implements can at least be somewhat helped by raising on skids a foot above the moist ground.

There has never been too much claimed for a liberal use of thick paint on exposed wood and plenty of grease on iron work, to prevent rot and rust. A little grease in the working parts of a machine exposed to continual dampness would certainly repay the sacrifice of a dog or two, if a better article cannot be afforded.—*Prof. Hood.*

THE NEW IRRIGATION.

WE seem to have entered upon a new phase of the vital question of irrigation in the western or "arid" section of the State. It has long been known that at almost any point of the miles-wide valley of the Arkansas River a saturated sand is struck at very shallow depth, usually four to nine feet, and from these sands water may be pumped in enormous quantities without apparently diminishing the supply in the least. It is argued, with strong support of fact, that this great body of sub-water has a distinct motion corresponding with the course of the visible river, which, in fact, is but the superficial outcropping of the great under-

ground stream. With these facts in view, Judge Gregory, editor of the Garden City *Sentinel*, has advanced the idea that, by tapping this under-flow with a ditch of suitable size and depth, a permanent supply of water for irrigation may be had, and this led to elevated regions, just as water from the river is ordinarily led away for use on the uplands. This novel and highly original plan of Mr. Gregory has been brought to the attention of the public with great persistence and force by means of circular addresses and newspaper articles published in his own and the Kansas City papers. As a result of this agitation, carried on by Mr. Gregory single-handed, the attention of practical irrigators has been drawn to the subject, and measures have been taken to give the new scheme a practical test upon a large scale. The corporation owning the great Dodge City "ditch"—a canal 25 feet wide and nearly one hundred miles long—are already at work upon an extension of their main ditch which will intercept a full mile and quarter of this sub-flow. This, with the number of powerful steam pumps planned for use another season, will certainly prove to what extent the sub-flow of the water of the Arkansas River is available to the husbandman.—*Prof. Shelton.*

THE PRESERVATION OF THE PRAIRIE HEN.

SINCE mankind has begun to take notice of such things, it is recorded that various animals and birds that were especially useful to man have become extinct through his insatiable love of killing for profit, for sport, or for the mere pleasure derived therefrom. It is a matter of history also that in every case of extinction or partial extinction of a species mankind has suffered more or less severely for it. The great auk of the North Atlantic, the dodo of Mauritius, and the sea cow of Kamtchatka, are examples the number of which could be multiplied, while the Alaska seal, the buffalo of our western plains, and the prairie chicken are fast following in their wake. With the buffalo, the "wild" Indian was a different thing from the squalid, spiritless being now so common on our reservations; and the pioneer settler had comforts derived from it which the rich cannot now command.

The prairie chicken, which every year does such yeoman service against the insect enemies of the western farmer, ought for this, if no other reason, to have a warm place in the estimation of all inhabitants of the prairie countries. But it, too, is rapidly disappearing. And for what? A very small number were killed for food, a very large number for profit, and a very much larger number out of mere wantonness.

The buffalo has gone beyond all power to return. Though a few still exist, there is little hope of saving it from extinction. But the prairie chicken is with us yet, and, with a few years of letting alone, would again abound in its once native haunts. It is one of the farmers' best friends, and has certainly earned the right to be killed decently and in order. Laws for its protection are of no avail unless public sentiment enforces them; and where public sentiment is right, statutory laws are unnecessary.

It is not intended to exclaim against their killing, but against their slaughter; nor against the sport they afford with dog and gun, but against that defiance of both the laws of the land and the laws of nature which results in their destruction, by the thousand, while only half fledged. To go out with a fine gun and a well-trained dog for the bagging of weak-flying, soft-fleshed prairie chickens no larger than "bob-whites," surely this is not sport—nor is it manly.—*Secretary Graham.*

PREPARE FOR WINTER.

The autumn months can be well employed by the farmer in making preparations for the winter. The feed must be got into a convenient position so as to make the winter-feeding as light as possible. There is no reason why the farmer's life should be one of unceasing drudgery, and it will not be if he takes proper pains to arrange his work.

If you have fodder to feed out during the winter, as many farmers have, do not leave it in the shock until cold weather and then depend on hauling it out and husking it as you use it, for that is no pleasant task, as I can testify. When I was a farm boy, I remember we had a large amount of stock to feed, and for roughness we used fodder to a great extent. I do not know why it was, but it so happened that the fodder was left standing in the shock; and I know it was most disagreeable and dreaded work to be compelled to turn out on cold, stormy mornings, when the mercury was away below zero, and the snow lay from one to three feet deep on the ground, and hitch up and haul and shuck out fodder for twenty-five or thirty head of horses and cattle. It was a part of my farm experiences that I never have and never shall forget, and I hope I may never be obliged to repeat it.

How easily that fodder could have been hauled in November, and, after being husked of the corn, ricked close to the feeding ground. And how much disagreeable labor, to say nothing of frozen toes and frosted fingers, might have been saved thereby.

But it seems that some people have but one idea about farm work, and that is to do it at the last moment. They put everything off as long as possible, and seemingly take no account of what they lose by so doing. They apparently entirely overlook the fact that delay increases the labor and adds new hardships.

Feeding in the winter is disagreeable work, and it should be made as pleasant as possible. This can be done by arranging the feed conveniently and having it so prepared that it can be handled with the least amount of work. If you have fodder, get it ready for feeding while the weather is mild and warm. If you have hay, stack or rick it in such a place that it will not need to be hauled. Use a little forethought and management, and save yourself a large amount of work and exposure.

Another thing: prepare your winter fuel while the weather and roads are favorable. Never let the autumn pass and the winter come on to find you all unprepared for it, with no fuel laid in. Next to hauling fodder on cold mornings, for unpleasantness, is the work of getting in fuel through storm, mud, and snow.

Much of the drudgery attending the farmer's life is due to himself, and if he only got into the habit of preparing beforehand for the hard duties, he could avoid much of the hardships of his calling. There is no necessity for the farmer exposing himself to all sorts of weather; and one day in the fall well used will suffice to do away with many an hour of hard work and rough exposure later on.

Every farmer should make it a point to employ the autumn days to the best advantage, so that when winter comes he can spend the greater part of his time under the shelter of his own home. Comfort demands this, as also does health and peace of mind; besides, it is profitable.—*Thomas P. Montfort, in Prairie Farmer.*

WHAT PRODUCES DEATH.

Some one says that few men die of age. Almost all persons die of disappointment, personal, mental, or bodily toil, or accident. The passions kill men sometimes even suddenly. The common expression, "choked with passion," has little exaggeration in it, for even though not suddenly fatal, strong passions shorten life. Strong-bodied men often die young—weak men live longer than the strong, for the strong use their strength, and the weak have none to use. The latter take care of themselves; the former do not. As it is with the body, so it is with the mind and temper. The strong are apt to break, or, like the candle, run; the weak burn out. The inferior animals, which live temperate lives, have generally their prescribed term of years. The horse lives 25 years, the ox 15 or 20, the lion about 20, the hog 10 or 12, the rabbit 8, the guinea-pig 6 or 7. The numbers all bear a proportion to the time it takes the animal to grow its full size. But man, of all animals, is one that seldom comes up to the average. He ought to live a hundred years, according to the

physiological law, for five times twenty are one hundred; but instead of that, he scarcely reaches an average of four times the growing period. The reason is obvious—man is not only the most irregular and most intemperate, but the most laborious and hard-working of all animals. He is always the most irritable of all animals, and there is reason to believe, though we cannot tell what an animal secretly feels, that, more than any other animal, man cherishes wrath to keep it warm, and consumes himself with the fire of his own reflections.—*Scientific American.*

STANLEY NEARING THE COAST.

Stanley's progress toward the East African Coast remains a mystery in spite of frequent dispatches from Zanzibar recording its various stages. The last bulletin received comes from German sources, though it is said to be confirmed by a dispatch received in Brussels,—and apparently is based upon information furnished to the Foreign Office by Captain Wissmann. Details are lacking, as usual; but the explorer's arrival at Mpwapa is timed for the latter part of November. Emin and Casati are now reported to be with Stanley and his white companions. This involves a direct contradiction of all recent information from the Zanzibar Coast. Like all the stories carried by Arab messengers and traders through the African jungle, this new version of the explorer's march is to be received with extreme reserve. So many contradictory accounts of his progress have been given that it is only prudent to reject every fresh bulletin that is not signed by Stanley himself.

It is safe to assume, however, that Stanley's next volume of African adventure will be his most interesting work, and will command an unprecedented sale. For three years all Christendom has been intensely interested in his fate and in the success or failure of his expedition for the relief of Emin. The extraordinary vicissitudes of his advance through the uninhabitable Equatorial forests to Albert Nyanza, the circumstances attending the meeting of the two explorers, and the subsequent march to the coast from Victoria Nyanza will furnish material for a volume of extraordinary interest. A sympathetic public that has grown weary of vain endeavors to reconcile the contradictions and to penetrate the intricacies of Zanzibar dispatches may be consoled by the reflection that Stanley is undoubtedly safe, and that in due time his wonderful narrative of adventure in the Dark Continent will be recorded in detail for the recreation of thousands of admirers in Europe and America.—*New York Tribune.*

KINDRED INSTITUTIONS.

The following reports or bulletins from Experiment Stations have escaped notice hitherto:—

- North Carolina.—No. 64, "Practical Stock-feeding on Scientific Principles," pp. 20.
- Massachusetts, Hatch.—No. 6, "Green-house Heating," "Fungous Diseases of Plants," pp. 20.
- Alabama.—No. 7, "Varieties of Beans, Peas, and Tomatoes," "Methods of Setting Milk," and "Meteorological Data," pp. 20.
- Iowa.—No. 6, "Bacterial Diseases of Corn," pp. 12.
- Minnesota.—No. 8, "Silencing Clover," "Home-made Manures," "By Products of Wheat," "Rocky Mountain Locust in 1883," pp. 36.
- Kentucky.—No. 21, "Wheat," "The Grain Louse," pp. 22.
- Maine.—Annual Report, "Fertilizers," pp. 35. Bulletins No. 1, "Fertilizers," pp. 4, No. 2, "The Apple Maggot," "Potato Rot," pp. 7.
- Ohio.—Annual Report, 1883, pp. 216. Bulletin—No. 13, "Curculio," "Cucumber Beetle," "Strawberry Root Louse and Grain Plant Louse," "Other Injurious Insects," and "Potato Rot," pp. 40.
- Ottawa, Canada.—No. 5, "Strawberry Culture," pp. 23.
- Michigan.—No. 52, Commercial Fertilizers, pp. 7. No. 53, Spraying with Arsenites, pp. 8.
- New York, State.—No. 17, Cattle Foods and Feeding Rations, pp. 26.
- Cornell.—IX. A study of Wind-breaks in their Relation to Forest-raising, pp. 24.
- Nebraska.—Nos. 7, 8, 9 and 10 combined, "Cattle Diseases," pp. 275.
- Mississippi.—No. 9, "Diseases of Sheep and Calves," "Bitter Weed," pp. 14.
- Massachusetts, State.—Analyses of Fertilizers, pp. 4.
- California.—Advance Sheets for Report 1883-1883. "Waters, Water Supply, etc.," pp. 57.
- New Jersey.—No. 58, "Analyses of Incomplete Fertilizers," pp. 11.

INDUSTRIAL WORK IN A. M. SCHOOLS.

Nearly all our schools—chartered, normal, and even common—give some industrial training. At Fisk, the young men are taught wood-working and printing; the young women, nursing, cooking, dress-making, and house-keeping. At Talladega, the young men learn farming, carpentry, painting, glazing, tinning, blacksmithing, and printing; the young women, cooking, housekeeping, plain sewing, and other needle-work. At Tougaloo, the young men learn farming, carpentry, blacksmithing, wheelwrighting, painting, turning, and tinning; the young women, sewing, dressmaking, cooking and housekeeping. At Straight, the young men receive instruction in printing, carpentry, and floriculture; the young women, needlework, cooking, and housekeeping. At Tillotson, carpentry is taught the young men; needlework, cooking, and housekeeping, the young women. Our normal schools at Memphis, Tenn., Macon, Ga., and Williamsburg, Ky., have carpentry, printing, and other industrial training for the young men, and training in the various arts of home life for the young women. At Wilmington, Charleston, Savannah, Macon, Thomasville, Athens, Ala., Marion, Mobile, Pleasant Hill, Sherwood, and other normal, graded, and common schools, the young women are trained in the things which they will most need in making comfortable and pleasant homes. Indeed, we make it our special care that the girls shall everywhere in our work be taught these things, so essential to the uplifting of a people. In many places where we have no schools, the pastor's wife, or our lady missionary, is doing this same kind of work.—*American Missionary.*

KANSAS THRIFT.

Frankfort is agitating a water works scheme.

Frank Lawson of Cherryvale has a bearing fig tree.

Junction City, it is said, is to have an electric street railway to Fort Riley.

The Manhattan Electric Light Company let the contract to the Western Electric Co. for putting in a plant. The company agrees to have 20 arc lights, 2000 candle power each, ready for service by December 10th, and the 500 incandescent lights by the 24th of December. Six bids were submitted.

The State of Kansas today is probably attracting more attention than any other State west of the Mississippi, on account of the abundance and quality of its farm products. Today Kansas can show to the eastern farmers a wealth of cereals as has never been seen before. Here lies an empire that produces more than all the New England States put together, more wealth than all the mines in the world, the estimated products of the mines being \$175,000,000. Kansas farm products will be more than \$200,000,000.—*Globe Democrat.*

Jonas Follet, living one mile east of town, has capped the climax this year in the squash line. He brought nine squashes to town on Saturday, taken from one vine, that weighed 386 pounds. The same vine produced four other squashes that weighed 49 pounds, thus making 435 pounds of squash from the one vine. He also brought in 9 other squashes, taken from one vine, that weighed 345 pounds. This vine produced 3 other squashes that weighed 37 pounds, making 382 pounds. Thus the two vines produced 817 pounds. These squashes are of the Chili variety.—*Long Island Leader.*

A BRIGHT HOME.

Now that the evening shadows are growing longer and the long winter evenings are almost upon us, let us put on our thinking caps and invent ways and means by which we can make our homes compete successfully with the saloon, the village store, and other places where men and boys are wont to congregate—not because they naturally love drink and ribald company, but because there is that implanted in our nature which demands brightness and entertainment, and if that is not furnished at home they will seek it wherever it is to be found, regardless of its character. Mothers who have sons to rear, and who fear the debasing influence of immoral associates, should study the nature of young manhood; its excessive restlessness; its disturbing, vain ambitions; its thirst for action and longing for excitement; its irrepressible desire to touch life, and drink in its inspiration.

So open your blinds by day and admit God's bright sunlight into your home and into your heart until every nook and corner glows with an effervescing and contagious cheerfulness; build bright fires by night till the parental countenance shines with a brightness that lights up everything and every person who comes within their influence. Hang pretty pictures on your walls, and fill your tables and book-shelves with good books and entertaining papers. Permit and encourage innocent and lively games. Banish all skeletons from behind the doors, and the demons of dullness and apathy that may have heretofore ruled your household, and bring in their stead mirth and cheerfulness. Stimulate the ambitions of your children in worthy directions. Don't blame barkeepers and evil companions if your sons don't turn out well, but blame it on the misdirected influence of parents and home, for it is possible by right means and exertion for a mother to have more control over the destiny of her boys and girls than any other influence whatever.—*Sioux City Farmer and Stockman.*

SLEEP.

Up to the fifteenth year most young people require ten hours, and till the twentieth year nine hours. After that age everyone finds out how much he or she requires, though, as a general rule, six or eight hours are necessary. Eight hours' sleep will prevent more nervous derangements in women than any medicine can cure. During growth there must be ample sleep, if the brain is to develop to its fullest extent, and the more nervous, excitable, or precocious a child is, the longer sleep should it get, if its intellectual progress is not to come to a premature standstill, or its life cut short at an early age.—*The Home-Maker.*

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 23th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Rev. D. C. Milner led the chapel exercises on Friday.

The weather flags are again on duty above the main building.

Prof. Brown visited his family in Leavenworth on Monday last.

The College Y. M. C. A. observes the Week of Prayer in a short session held each morning before the exercises of the day begin.

Regents Wheeler and Forsyth represent this College and Kansas agriculture at the Farmers' Congress, held at Montgomery, Ala., this week.

Mr. and Mrs. Gundaker are now comfortably installed in their new house on Colorado Street, between Sixth and Seventh, and a pleasant one it is.

Ex-Superintendent of Printing A. A. Stewart and Mr. Lou Carney of Downs, a former resident of Manhattan, were pleasant callers on Friday morning.

Volume 25 of the Official Records of the War of the Rebellion, just received for the Library, is devoted almost entirely to the Chancellorsville Campaign.

The Manhattan Horticultural Society held its regular quarterly meeting in Horticultural Hall on Thursday last. Prof. Failyer and Foreman Mason presented papers.

The proceedings for 1889 of the National Council of Education, of which President Fairchild is an active member, have been published, and a copy placed in the library. It is a handsome pamphlet, and is full of good things.

A note from the Chief of Ordnance, under date of November 8th, says that two three-inch rifled guns, and all necessary accoutrements, have been ordered shipped to the College from the Rock Island Arsenal at an early date.

New students continue to come in by ones and twos occasionally, and help to swell the already crowded classes. Several have been admitted during the past week, and others are busy with the entrance examination in the Secretary's office.

The recent rainy weather makes the repaired crossings in the walk leading to the College doubly appreciated. The City Council evidently understands its business in the matter, and Street Commissioner Harrison makes an excellent executive.

The Board of Regents wisely decided that this institution should be represented at the National Convention of Agricultural Colleges in session at Washington, D. C., this week, and sent Pres. Fairchild, who left for the east on Friday of last week.

Janitor McCreary killed a 'possum at the south entrance to the basement of the main building on Tuesday evening last. In the interest of science, he has turned the game over to the Museum Committee, who intend giving it a permanent place among the other inhabitants of the new cases.

Pres. Geo. Sutherland of Ottawa University was a very pleasant caller on Monday. He devoted the time at his disposal to a careful inspection of the records of the Secretary's office, with a visit to several departments of special interest to him. He occupied the Baptist pulpit on Sunday.

The joint meeting of the Domestic Science Clubs of Manhattan and Junction City, held in the latter city on Thursday last, was attended by the following College ladies: Mesdames Shelton, Failyer, Kellerman, Lantz, Walters, Olin, Kedzie, Winchip, and Willard, and Miss Agnes Fairchild.

Several specimens of Austrian and Scotch pines have been cut from the old College farm, and sections of them will find place in the museum. The largest Austrian pine measured 31 feet and 3

inches, and the Scotch, 33 feet and 3 inches in height. These trees were planted by Prof. Gale twenty years ago.

Mrs. Kedzie reports much disagreeable weather during the session of the Social Science Club at Wichita last week, which interfered to a great extent with the attendance. But the rain and snow and mud in nowise affected the interest of the meetings. Mrs. Kedzie's paper, "Training for the Industries," is highly spoken of by the Wichita press.

The Second Division of the Fourth-year Class appeared in original orations in chapel yesterday afternoon for the first time. Names and topics are appended: "Men who cannot be bought," C. W. Earle; "Necessity of Education in a Republic," S. C. Harner; "The Indian Question," J. W. Ijams; "Mind and Influence," Mary B. Senn; "Education and Labor," G. W. Dewey; A Comparison and a Conclusion," W. L. Morse; "Relation of Idealism and Realism," Julia R. Pearce; "Causes and Justice of the French Revolution," E. C. Pfuetze.

FARMERS' INSTITUTES.

The College is casting about to make up the list of farmers' institutes for the winter. It is desired to hold as many of these meetings as possible at an early date. It is the wish to reach portions of the State in which as yet we have had no institutes. In these institutes, members of the College Faculty take part, with no expense to the locality where the meetings are held.

The objects and the advantages of these institutes, which have been conducted under the auspices of the College for the past ten years, are so well known that it is not necessary to enlarge here. Applications for institutes addressed Agricultural College, Manhattan, Kansas, will receive prompt attention. Will the papers of the State assist in bringing this matter to the attention of farmers?

GRADUATES AND FORMER STUDENTS.

W. H. Olin, '89, Principal of the Wabaunsee Schools, called at the College on Saturday last.

Geo. F. Guy, student in 1882-83, was last week elected Clerk of Riley County on the Democratic ticket.

W. E. Mitchell, student in 1887-8, writes from Topeka, where he is seeking to fit himself for a machinist.

Grant Selby, a student in '81, showed his good-natured face at the College for a few moments on Friday morning.

Supt. W. E. Whaley, '86, of the Manhattan City Schools, was a visitor at the chapel exercises on Tuesday morning.

Grant Arnold, '88, is now teaching and holding down a claim in Washington. He predicts a great future for his adopted home.

R. L. Wallis, Second-year student last year, writes from Williamsburg, where he is teaching. He hopes to return to College next year.

J. E. Payne, '87, writes from Edgerton, Johnson County, where he is teaching, rejoicing that his county took the \$500 premium at the St. Joseph Exposition.

W. J. Lightfoot '81, has left the employ of the Santa Fe Railroad Company at Topeka for a better position with the Union Pacific Company. He has charge of construction in the west.

U. S. G. Bowersox, First year in 1888-89, called on friends at the College on Monday last enroute to Great Bend, where he will attend the Central Normal College. He intends soon to return to this College.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, K. C. Davis; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, K. C. Davis, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

SOCIETY HALL, November 8th.

The Alpha Beta Society was called to order by President Secrest. Singing by the congregation. Miss Corlett led in devotion. Roll call. The next on the programme was an interesting select-reading by Miss Paddleford, which was an extract from one of H. B. Stowe's most humorous productions, entitled "Laughing in Meeting." Miss Newell gave a good declamation entitled "Jamie Douglas." Debate, question, "Resolved, That Lincoln deserves more credit as the defender of his country than Washington as the father." Miss St. John opened the affirmative with a graphic description of both presidents. She showed how limited were the educational privileges of Lincoln, the poor student, in comparison with Washington, the wealthy student. She proved that Washington had a united America at his command, while Lincoln's supporters were divided on many of the questions of the day. Miss Corlett on the negative brought forward some forcible argument by comparing the educational facilities of Washington's time with those of Lincoln's. Mr. Donahue on the affirmative made one good point against Washington by referring to his ungovernable temper. When R. A. McIlvane came in on the negative, every one listened with interest to the statement that Lincoln was not in as much danger of being shot as Washington; and though Lincoln did get shot at last this made no difference. Mr. McIlvane's argument seemed to carry the day, for the Judges, Messrs. Senn, Clark, and Zimmerman, immediately returned a verdict of two to one for the negative. Mr. Thackrey being ill, the *Gleaner* was presented by J. A. Zimmerman. It was interesting, and forcibly reiterated its motto of "Be a man." Recess. The music committee, E. P. Smith, then reported; and the quartet consisting of Messrs. Smith, Hutto, and the Misses Green favored the Society with one of the choicest of songs, written by Ella Wheeler, and entitled "The Telegraph Wires." This song was crowded with life's realities, joys, and sorrows. Under the head of informal speeches, W. W. Hutto spoke on the subject, "Is it better for us to hold night sessions?" He took the affirmative with the assistance of J. E. Taylor, F. E. Way and many other members championed the negative from almost every standpoint. This discussion was interesting for the reason that it brought out speeches from new members. Miscellaneous business. Assignment of duties. Report of Critic. Reading of the minutes. The music committee then reported, and Messrs. Westgate, Hutto, and Smith rendered "The Chemist's Song" in fine style. This was made up of chemical terms interspersed in ludicrous profusion with common English words. Adjournment.

G. L. C.

SOCIETY HALL, October 9th.

The business of the evening with the Webster Society began by the initiation of C. B. Selby. The gentleman was heartily welcomed. Besides being a good student, he is a musician, and will be a support at all times. The programme of the evening began by W. H. Edelblute, who, with J. W. Hartley as assistant, discussed the affirmative of the question, "That every soldier of the late war who had served three months or over, should be granted a pension." Mr. Edelblute stated that the question was ambiguous, since the Board could not mean to grant pensions to persons fighting against the Union. But he wisely avoided the possible interpretation by holding his argument close to the Federal soldier, showing how many are suffering from diseases contracted during the war, who have never been recompensed. How that a soldier, though not in the war more than three months, risked as much—his life—as he who was in the service longer. And how the money which is distributed among ex-soldiers is a public benefit also, for it brings that money into circulation. The negative was presented by Messrs. G. C. Gentes and A. S. Houghton. These gentlemen thought the question impracticable, since there were so many who in serving a short time were not injured even though they may be disabled now. There is also much corruption used in securing pensions now, and this would be increased; and lastly, the most villainous would share the same chances as the honorable veteran. The question was decided in the affirmative. Another important decision made at this juncture was that the deciding of a debate was not similar to other motions, and that a full vote could not be called. Declaration by J. A. Robertson, "The North American Indian." Essays, J. E. Dorman, about Esquimaux, and F. C. Holcomb about Farmers. Mr. Holcomb's essay was considered abstractly, and was especially good. Instrumental music was furnished by B. P. Scott and A. A. Gist. The Reporter was read by D. C. McDowell. One remarkable article read was a full explanation of the descent of man, but want of space prevents comment. Discussions, T. C. Davis and A. A. Gist. The members were all elated to see W. H. Olin once more with us, and his remarks were well received. The committee appointed to purchase a new edition of the Webster Constitution, reported, having succeeded in getting five hundred copies. The new edition is a twenty-five page pamphlet containing all amendments and names of members down to date, and is a model of neatness.

H. D.

HAMILTON HALL, November 9th.

At 7:30 the room was well filled, and President VanZile was in the chair. A favorable report was made on the name of C. J. Peterson. The programme was opened by a declamation by J. A. Rokes. The selection was the old but standard speech of Patrick Henry. C. D. Adams chose for the subject of his essay, "How the farmer boy attends a Business College." The essay showed considerable thought and originality on the part of the author. For Judges in the debate F. A. Waugh, G. W. Wildin, and A. T. Ellsworth were chosen. The question, "Is party spirit beneficial?" was presented by C. P. Hartley. Some thoughts presented by the affirmative were, that in nothing but a despotism can party spirit be excluded; that the present was due or was at least received from the first two political parties; that the party spirit produced competition, and that on this account the best men on both sides were brought forth. A. E. Martin was the first speaker on the negative. The negative brought forth points tending to refute any argument of the affirmative, and gave examples of acts of parties which were detrimental rather than beneficial. Such would be the consideration of the Irish and Pension questions. After further discussion by R. W. Newman and G. T. Morrison, the judges decided two to one in favor of the affirmative. It may be of interest to note that this is the first time, this term, that the affirmative has received the decision of the judges. U. G. Balderston delivered an oration on the "Sale and Manufacture of Intoxicating Liquors." The gentleman is rather inclined to believe that unless there is a national prohibition law there should be none. Mr. Balderston is evidently a resubmissionist. After recess L. S. Strickler and his troupe furnished the society with music. There were several solos as follows: Piccolo solo, F. A. Waugh; A. T. Ellsworth, tuba solo; bass drum solo, H. C. Cobb. The *Recorder* was presented by H. B. Gilstrap. On account of some misfortune of the editor, the paper was one week late. As there was rather urgent business before the Society, the remainder of the programme was omitted. After the trial of one of the members the Society listened to assignment of duties, and adjourned.

C. E. C.

SOCIETY HALL, November 8th.

The Hall was well filled when President Waugh called the Society to order. Misses Howell and Wiley were initiated. The programme opened with music, a solo, by Kate Pierce, Julia Pearce at the organ. A select reading by Minnie Shaffer was followed by an essay by Kate Pierce. The Society then listened to a declamation by Doris Kinney. The *Oracle* was edited and read by Fannie Waugh. Music, a duet, by Misses Vail and Kinney, Hattie McConnell at the organ. The authors which took the place of debate were a grand success. Report of organ committee. Roll call with quotations. Society adjourned.

S. E. H.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Leoti school house has a new thousand-pound bell.

The schools of Armourdale have 820 pupils enrolled.

The State Normalites will have a reunion at Copeland Hotel during the State Teachers' Association.

The Reno County teachers met at Hutchinson, Nov. 9th. A good programme and a fair attendance are reported.

The Kansas State Grange will hold its eighteenth annual session in Topeka, commencing Tuesday, December 17th, 1889.

The pupils of the Abilene schools are at work on a silk banner which is soon to float from the dome of the school building.

Miss Hattie Horner, the Kansas Normal poetess, is now writing for the *Golden Era*, a monthly magazine published at San Diego, Cal.

Prof. Olin will conduct our next Normal Institute. This will be good news for the Elk County teachers. The institute will be held in August.—*Howard Courant*.

Ten quarto volumes of Fenelon's works in the original French have been received by the State University for the library. They were obtained by Prof. A. G. Canfield at a great bargain.

Some of the teachers of our city schools have adopted a new manner of trying to enforce punctuality. Delinquent pupils are kept after school in the evening, and when others have all gone home they are put through a course of foot-racing in order to make them more fleet when the school bell rings.—*Washington Republican*.

The Trustees of McPherson College have decided to place the *Educator and Companion* in the hands of the Faculty, to be conducted by them as they deem best. It is intended to pattern the publication after the *INDUSTRIALIST*. The President, S. Z. Shays, will be editor-in-chief, and Daniel Vaniman, the business manager of the College, will be associate editor, while the Faculty are expected to write contributions, and the students to furnish their weekly reports of society work. The *INDUSTRIALIST* congratulates McPherson College on this move, and predicts that the *Educator* will become a brighter and more useful publication in every way, and that it will richly repay the institution for all the labor it is able to bestow upon its pages, even if it should reduce these from eight to four.

The annual meeting of the State Teachers' Association opens in Representatives' Hall at 8 P. M. December 25th. It will continue in session through the evening of the 27th. As announced in our June number, the programme has already been well distributed throughout the State. An unusually good opening may be expected this year for every discussion, if there is any virtue in allowing them, as every one of the leaders in discussion was asked to choose his own subject. The symposium for the second evening, on "Training for Citizenship," was of course not arranged in this way; the committee named this subject, and asked Presidents Fairchild and Taylor and Professor Canfield to discuss it. The subject of Senator Ingalls' address has not yet been announced. The railroads will doubtless give a half-fare rate on tickets bought December 24th and 25th, and they have been asked to omit the two-hundred-mile limit on tickets from Kansas points to Topeka. Prof. George C. Ryan of Leavenworth High School is railroad secretary of the Executive Committee, and will attend to all correspondence on that subject. The matter of boarding accommodations is in the hands of Principal W. M. Davidson of Lincoln School, Topeka, and applications for information or assistance in that line should be addressed to him at his residence, 913 Clay street. Copies of the programme will be issued early in November, giving full information on all points, and can be obtained by addressing State Superintendent Winans, Secretary of the Executive Committee.—*From the Normal Quarterly*.

The University *Kansan* rejoices in the addition to the museum of the State University of some very fine specimens. It says: "Judge West recently returned from a four month's collecting expedition in Western Kansas. The result of his labors were seen in thirty-nine cases of specimens which arrived this week, weighing 3,000 pounds, and making half a car load. The specimens are those of fossil vertebrates of the cretaceous formation, including saurians, fishes, turtles, and pterodactyls. There are between 75 and 100 jaws of fossil animals, some with teeth intact, and some without. The pterodactyls number about half a dozen, and are the first the University has obtained. Among other fine specimens is a saurian jaw found in the Nickle Mine Canon. Only about two inches of the upper jaw projected from the rock, but the scientific eye of the Judge knew there was something there, and as a result the museum has obtained an extraordinarily fine specimen."

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 30 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum, containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,000.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, friezer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory, with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$500.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms, with six machines, models, patterns, and cases; worth \$550.

Music Rooms, with four pianos, four organs, and other instruments; valued at \$1,500.

A library, carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory, containing one hundred and fifty stands of arms (breach-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$300.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

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E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. One collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75"

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

HOW SHALL IT BE TAUGHT?

"WHAT shall we teach?" was so answered in our last that we assume music to have a place in the curriculum of the higher ideal school not secondary to any other study. It takes hold of the corporeal part of us, as well as our intellectual and spiritual, and claims its place as a science and as an art, as a healthful recreation for the body, and most soothing emotional tonic and excitant for the mind.

It is with us in its influences from the cradle to the grave: the mother's lullaby puts us to sleep when wrapped in the swaddling clothes of infancy, and the funeral hymn and dirge syllables the sorrow and marks the rhythm of the procession that bears us to the last resting place wrapped in the shroud of death.

Our hours of joy and hours of sorrow, of friendship and devotion, are alike filled with her presence. In this, no nationality is an exception, no condition of civilization wanting: when culture is lacking instinct is present; and, however rude her means and limited her resources, if only the tomtom, the groan and sigh and shout of the savage, music is sought, and refuses not her ministration which seems so necessary to the wants of the human soul.

Claiming this for music, the question, How shall it be taught? becomes a most pertinent one, and will not be unworthy a few moments' serious consideration. The best method of instruction will be found in the best understanding of the subject taught. If music be a science, then the methods of science should be followed in imparting a knowledge of her principles. Both analysis and synthesis should be used in the discovery and verification of her truths. A logical classification of the science should be made, definitions should be exhaustive and transparent as to what is defined, and technical terms should be simple and free from all ambiguity. This done, it would be found, as *a priori*, we should expect concerning that which is of the nature of a universal necessity, that her elementary truths are easy of comprehension by the ordinary intellect of children, and her essential principles not so many as to add greatly to the burden of the already overburdened learner.

But it is an art. The student of music must be more than a learner of abstract truth: he must possess technical skill, so that, guided by the light of science, he shall evoke, from the vasty deep of the soul's emotional sea, forms that shall charm or thrill or inspire with awe and dread. This technical skill must be acquired in the line of the pupil's adaptiveness under the guidance of the scientific method. If the voice he would cultivate, then a knowledge of vocal anatomy, physiology, and acoustics is imperatively demanded, the right attitude, the right movements of respiration, the laryngeal and pharyngeal action for best results in pitch and quality, the right articulation for most distinct utterance—these should be mastered and become automatic by practice; and must be right as the laws of physiology and anatomy and acoustics would pronounce right.

So if other instruments should be chosen, the piano, organ, violin, or horn, let the same method be followed. The instrument should be thoroughly understood; then the right muscular movements necessary to manipulate it should be taught, so that its manipulation shall not only bring pleasure to the ear of the listener, but health, grace, and beauty to the performer.

It is related by one who had the privilege of conversing with Ole Bull, the eminent virtuoso, philosopher, and philanthropist, that when asked concerning his method—taking up his dark-colored

French-made violin from its satin wrappings and elaborately carved case, the gift of love from his admirers and beneficiaries, and handling it with the tenderness of a thing of life, said he: "I would first explain to the pupil the material and structure of the instrument; name its parts, and explain their functions; how the hand must move in order to master these functions; then the muscles of the arm and body subservient to these movements of the hand—feel my arm; the muscle is like iron, so only can all the wonderful resonance of this matchless instrument be revealed. But," stopping suddenly in his enthusiastical directions, "you are not done when you have taught the instrument and the hand and the arm. Back of all, and more than all, stands the soul, that must be developed. Nothing is heard but the soul first feels; knowledge and skill with an uncultivated soul are helpless to move the spirit of man."

The prattle of a child pleases us because its words and thoughts harmonize. But we are annoyed by the tones and words of an adult, no matter how beautiful the tone or how distinct the utterance, if they are not freighted with becoming thought and emotion.

As a science and an art, music will be seen to be a complex study demanding peculiar methods and text-books and apparatus, involving a knowledge of other studies as collateral and essential, among which may be mentioned orthoepy and prosody of grammar, physiology and psychology, acoustics and gymnastics, reading and elocution, and hence is best pursued in conjunction with these studies; and, so far as voice culture goes, should be a part of the curriculum of the common school, as well as of the higher schools and colleges.—Prof. Brown.

DISEASES OF WHEAT CAUSED BY FUNGI. I.

IN 1885, Dr. Voglino, an Italian mycologist, enumerated forty-six fungi parasitic on wheat (*Triticum vulgare*, L.). Many of these are of little importance, but others cause great damage. There are four classes of important diseases of wheat found in Kansas; viz., rusts, mildew, smuts, and leaf-spot. Of these, the rusts are, in most cases, the most destructive.

RUSTS.

The common rust (*Puccinia graminis* Pers.) has three distinct stages in its life history. The I., or cluster-cup stage, grows on leaves of the barberry. The spores of this stage, falling on wheat, produce the II., or red rust stage, which is so dangerous to the crop. Later in the season, the III., or black rust stage, is formed. This stage has thick-walled spores which germinate in spring, producing minute secondary spores. These secondary spores, falling on barberry leaves, produce the I. stage again.

Now, it has been found that this rust is able to live and thrive in countries where the barberry does not grow. To account for this fact, several theories have been proposed: First, that the cluster-cup stage grows on other plants besides the barberry; second, that the secondary spores produced by the winter spores in spring, may, if they fall on young wheat, produce the red rust directly; third, that the II. stage is able to pass the winter on young wheat, thus rendering the I. and III. stages unnecessary.

In this connection, it should be remarked that the II. stage is able to reproduce itself indefinitely before producing the III. stage; but the I. and III. stages never reproduce themselves directly.

It is important to know that *Puccinia graminis* Pers. is not the only rust found on wheat.

In fact, the most common, and, usually, the

most injurious, rust in this State is *Puccinia Rubigo-vera* (DC.) Wint., and another species (*Puccinia coronata* Corda) is known. Both of these rusts, like the one first mentioned, have their II. and III. stages on wheat; but both have their I. stage on plants very different from the barberry. The following statement will make this plain:—

<i>Puccinia graminis</i> Pers.....	I. Clustercup on <i>Berberidaceae</i> . II. Red rust on wheat, etc. III. Black rust on wheat, etc.
<i>Puccinia Rubigo-vera</i> (DC.) Wint.	I. Clustercup on <i>Boraginaceae</i> . II. Red rust on wheat, etc. III. Black rust on wheat, etc.
<i>Puccinia coronata</i> Corda	I. Clustercup on <i>Rhamnaceae</i> . II. Red rust on wheat, etc. III. Black rust on wheat, etc.

A most important fact recently established regarding the rust of wheat is that the II. stage of at least *Puccinia Rubigo-vera* (DC.) Wint. can pass the winter in the young wheat plants. At the date of this writing (Nov. 21st, 1889), the wheat in the fields about Manhattan is, in almost every case, rusted considerably; and, in a few fields, is very appreciably injured by this red rust. Two weeks ago the II. stage of *Puccinia graminis* Pers. was also abundant. It is known that, although the spores are not produced during the coldest weather, the mycelium lies dormant in the tissues of the plant, and will in spring produce another crop of spores. Volunteer wheat and wheat sown very early is especially liable to be attacked by the rust in the fall. It will be seen at once that this fact becomes of great importance in attempting to prevent the rust.

Another important fact is that both the II. and III. stages of all three of these rusts growing on wheat also occur on other cereals and grasses. It is also true that some varieties of wheat are less liable to the rust than others, and that early ripensorts often escape serious damage. Then, besides all this, the development of the rust is, to a great extent, dependent on climatic conditions beyond the control of the farmer. However, it is no rash assertion to say that probably in a few years the rust will be as well under control as the other diseases of plants caused by fungi.

MILDEW.

The wheat mildew is caused by *Erysiphe graminis* DC. It has not been reported from the Eastern States, but it is well known in Europe and on the Pacific Coast. In Kansas, it is abundant and destructive. It stimulates the rust by causing the leaves to turn yellow in Spring, but instead of showing bright reddish pustules of spores, the diseased leaves appear coated with a white, powdery mould.

This fungus has two distinct stages. The conidial, or summer stage, consists of numerous white threads running over the surface of the leaf and bearing chains of colorless or pale yellowish spores on the ends of upright branches. These spores are produced in great abundance, and spread the disease so rapidly that in a few days of favorable weather in spring a whole field may become mildewed. Later, the resting, or winter stage, is formed on the stems and leaves, among a dense whitish mass of mycelial threads. This stage consists of dark-colored globular conceptacles called *perithecia*, containing numerous sacks, each of these in turn containing two spores. These perithecia are supposed to fall to the ground in Summer or Fall, and to burst in Spring, scattering the spores over the young plants. As in case of the rusts, the summer stage of the mildew is able to pass the winter in young plants. A common wild squirrel-tail grass (*Hordeum pusillum*, Nutt.) is the favorite host of the mildew, and on it the summer stage is able to pass the winter. It is almost certain that, in order to control the disease perfectly, this grass will have to be destroyed, or at any rate not allowed to grow along the edges of the wheat-field. At this date, one of the College fields of wheat has this grass growing along two sides; and, while the wheat is free from the mildew, the grass is covered with it. In Spring,

however, the case will be different, and the mildew will spread to the wheat.

This disease can probably be eradicated by carefully destroying all the stubble by fire, and killing the squirrel-tail grass; or it can be more certainly prevented by spraying the wheat once or twice in spring with Bordeaux mixture (a well-stirred mixture of $2\frac{2}{3}$ lbs. copper sulphate, 5 lbs. unslaked lime, and 11 gallons water). To be of value, the spraying must be done before the perithecia have formed, for their thick walls resist the action of the fungicide. Experiments made during the first week in May, 1889, showed that by thus spraying the young wheat the mildew could be prevented. Of course, it will depend entirely on circumstances whether such a treatment would be profitable or not.—*Assistant Swingle*.

WHAT IS "ONE-HORSE POWER?"

When men begin first to become familiar with the methods of measuring mechanical power, they often speculate on where the breed of horses is to be found which can keep at work raising 33,000 pounds one foot per minute, or the equivalent, which is familiar to men accustomed to pile driving by horse power, of raising 300 pounds 100 feet per minute. Since 33,000 pounds raised one foot per minute is called one-horse power, it is natural for people to think that the engineers who established that unit of measurement based it on the actual work performed by horses. But that was not the case.

The horse-power unit was established by James Watt about a century ago, and the figures were settled in a curious way. Watt, in his usual careful manner, proceeded to find out the average work which the horses of his district could perform, and he found that the raising of 22,000 pounds one foot per minute was about the actual horse power. At this time he was employed in the manufacture of engines, and had almost a monopoly of the engine-building trade. Costomers were so hard to find that all kinds of artificial encouragements were considered necessary to induce power-users to buy steam engines. As a method of encouraging business, Watt offered to sell engines reckoning 33,000 foot pounds to a horse-power, or one-third more than the actual. And thus, what was intended as a temporary expedient to promote business has been the means of giving a false unit of a very important measurement to the world.

CARP CULTURE ON THE WANE.

We hear but little of carp culture nowadays. We believe there never was any practical difficulty in "raising" carp, but it is found that the fish does not prove popular. Many regard it as too coarse and tasteless—like a poor kind of shad. Others compare the meat to that of a coarse catfish. Notwithstanding individual objections, it is true that the carp is a useful and acceptable fish, though epicures may not regard him as equal to the salmon, trout, or even the whitefish. But there would be no practical difficulty in cultivating the bass and other kinds of acceptable fish—if not in the same pond, by an arrangement with the same springs. The fresh food supply of the farm and household could be greatly augmented by a little money and pains in this respect. Most healthy persons enjoy baked or fried fish occasionally; it is a palatable, nourishing food, easily digested and assimilated; and a well-constructed and shaded fish-pond is an ornament to the well-designed farmstead. There are now, on the line of the Cincinnati Southern Railway, within the fine State of Kentucky, ready facilities for making and maintaining fish preserves capable of a production worth tens of thousands of dollars. The carp multiplies rapidly, costs very little to maintain, will grow to the weight of fifty or sixty pounds, and lives longer than men do.—*Cincinnati Commercial*.

Old ways and methods are being superseded by new ones. This fact must be grasped by those who would measure the agricultural situation accurately. The change in transportation, markets, and conditions calls for specialties in farming. Old methods and machines are out of date.—*B. W. McKean*.

The capacity of the Ellsworth electric light plant is to be increased.

KANSAS THRIFT.

The proposition to vote an additional \$2,000 to continue the coal prospecting in this city was carried by an almost unanimous vote. The work, which had reached the limit of the last appropriation and was suspended to wait the result of this vote, will now be resumed, we presume, at once. We have great faith that coal will be found before Christmas.—*Marion Record*.

The wheat in this county is looking very fine, and continued moisture that falls insures it to come out in the spring in a first-class condition. The acreage is certainly eight times what it has been in any one year before. This large acreage goes to demonstrate that the farmers have unbounded faith in the future of Ford County, and are proving their faith by their works.—*Ford Gazette*.

Two years ago we all had to buy corn that was shipped from Nebraska and Missouri and pay from sixty to seventy-five cents per bushel. This week E. C. Holmes drove into town with three loads that he had purchased in Thomas County for twelve and one-half cents per bushel, and was offered corn after he started home for ten cents. This shows how the western part of Kansas has progressed as an agricultural country. There is no better place anywhere to collect cattle or sheep and feed for spring market than in Western Kansas, and this cheap grain ought to all be put on foot before next June and driven off the farms on which it was grown. A few more years will see the herds of cattle and sheep keeping pace with the great crops of fat-producing grains, and no one will have grain to sell, but will look for stockers to feed the surplus he has grown on the rich land that he has acquired for a mere song.—*Russell Republican*.

There is probably no crop grown which produces more satisfactory results on the whole than alfalfa, a species of clover, introduced into the Western States from South America, and hence sometimes called "Chilian Clover," though it has been cultivated in France and Germany for centuries. Another name is Lucerne, and it is by this name, or a modification of it, that it is known in the East. In California, it is not uncommon for alfalfa growers to cut this crop five, or even six times, in a season. Here it is cut three and four times, and one piece within our knowledge was cut five times in one season. The usual method is to cut the first crop for hay, simply; let the second crop go to seed; cut the third crop for hay, and pasture the aftermath. If hay alone is the object, four good cuttings averaging upward of a ton and a half per acre, per cutting, may be harvested any ordinary season. In order to make good, ripe hay, the crop is allowed to stand until well in bloom.—*Garden City Sentinel*.

ELECTRICITY BETTER THAN SAND.

A series of experiments with a new electrical appliance for increasing the tractive power of locomotive engines has just been successfully concluded by Elias E. Ries of Baltimore, on the Philadelphia and Reading Railroad. The trials were made on the Frackville grade, one of the steepest on the Reading system, and were pronounced eminently satisfactory in every respect. The apparatus consists of a small dynamo and engine mounted upon the locomotive, and furnishing an electric current, which is passed forward to the rear driving wheels, through that portion of the track rails lying between them. The passage of the current into the wheels and back causes an increased friction between the wheels and the rails, which is claimed to be far superior to that obtained by sanding the tracks, and enables the locomotive to draw a much heavier train, without regard to the condition of the track, than is at present possible. The Frackville grade averages 185 feet to the mile, and with the dynamo running, and a train of forty-five cars attached to the locomotive, the ascent was made in twenty-eight minutes, while without the current a trip over the same ground with the same train behind required fifty-five minutes. The current used is what is termed a low-tension current, and the increased traction obtained is under complete control by the engineer.—*Scientific American*.

The doctor will take his medical journal, the school teacher his educational paper, the business man his daily paper, the politician his political party paper; but the farmer, where is he with the paper which relates especially to his interest?—*New England Farmer*.

CALENDAR.

1889-90.

Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.

1890-91.

Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

The usual fine show of chrysanthemums is to be seen at the greenhouse.

Pres. Fairchild went to Topeka yesterday on personal and College business.

Pres. Fairchild and Prof. Olin are booked for lectures in Chaplain Parker's course at Fort Riley, this winter.

The stock growing in the orchards and vineyards goes into winter keeping in good condition, promising well for a heavy crop next year.

The grand total of the College inventory of property, exclusive of that belonging to the Experiment Station, was on June 30th \$247,518.35.

A young lady member of the First-year Class was heard to remark the other day, that she wished she were a Third-year so she could "bisect" cats with the Physiology Class.

The programme of the Fourth Annual State Sanitary Convention, to be held in Lawrence on December 4th and 5th, is an exceptionally full one, and promises good things to those who attend.

The burning of A. N. Kellogg & Co.'s printing and engraving establishment, in Kansas City, will delay the singing books intended for use in chapel, for several weeks. This house is to furnish photo-engraved plates of the music.

Our thanks are extended to those of our friends who have answered our call for the earlier issues of the catalogue of this College. It is to be hoped that others may yet respond, and thus place at our disposal the means of effecting exchanges for other like publications.

Prof. Shelton has offered his household goods for sale. They may be inspected at the residence after December 1st. The Professor and his family expect to sail from San Francisco about January 11th, and will reach their destination, Brisbane, Queensland, Australia, a month later.

Declamations were delivered in chapel Friday afternoon by the fourth division of the Third-year Class, consisting of Misses Bessie Little, Madeline Milner, and Nellie McDonald, and Messrs. F. M. Linscott, H. E. Moore, A. E. Martin, P. C. Milner, D. C. McDowell, and A. K. Midgley.

President Fairchild was at his place again on Monday, having had a prosperous journey to and from Washington, and a profitable stay there of five days. In the Association of Agricultural Colleges, he was honored with appointment upon several important committees and election as one of five Vice-Presidents.

At the meeting of the Manhattan Horticultural Society, held at the College on Thursday of last week, an interesting exhibit was made of ornamental fruiting plants from the grounds, among them being the large fruited privet, common privet, black alder, or winter berry, European staff-tree, and Carolina buckthorn, which made a fine showing of their ripe fruit.

It is a matter of regret that the love of "some folks" for the great American dollar is so intense that other things which might profitably have a place in their thoughts are constantly absent. If this local were continued, it would be entirely for the benefit of those thoughtless people who scatter handbills of various kinds about the College lawns with no regard for the comfort of others, or for the labor it will cost to cleanse the grounds to respectability again.

The following articles await the claim of ownership in the "lost drawer" in the Secretary's office: Thirty-one handkerchiefs, two hats, one pair of gloves, one mitten, fifteen knives, two combs, two lead pencils, one eraser, two button-hooks, two cuff-buttons, one collar-button, one ladies' hat-pin, one compass point, one compass wrench, one triangle, one bundle of foolscap pa-

per, one Chemistry, one Trigonometry, one Word Analysis, one Bookkeeping, one U. S. History, four song books, one Christmas card, and one dime.

GRADUATES AND FORMER STUDENTS.

C. G. Clarke, '88, receives the State certificate from last State examination.

J. B. Brown, '87, is prospering as a teacher in the city schools of Fredonia.

J. C. Wilkin, student of last year, has placed us under obligation by sending back catalogues.

D. G. Fairchild, '88, has excellent work in the Botanical Section of the National Department of Agriculture upon special diseases of plants.

C. L. Marlatt, '85, was found by the President in good repute among his fellow workers in the Division of Entomology of the Department of Agriculture at Washington.

A. D. Cozad, First-year in 1888, and since then an employee of the Scottford Rubber Stamp Works of Kansas City, was a visitor on Wednesday. He plans a continued course here after the holidays.

A private letter from A. H. Greeley, Fresno, Cal., of the class of '90, states that he is hard at work in the employ of a mercantile company, and has strong hopes of returning to finish the course with the class of 1891.

B. M. Bovard, Third-year in 1886-7, was elected Surveyor of Lane County at the last election by a larger majority than any other candidate on the ticket received. He has been County Surveyor by appointment for sometime past.

J. S. Hazen, '89, has moved again—this time from Savannah, Ga., to Hatteras, N. C., from which point he writes that he is stationed on a barren island upon which there is only a light-house and a life-saving station. His duties as Observer in the Signal Service call for all his knowledge of physics and meteorology.

News comes of the marriage of J. G. Arbuthnot, Second-year in 1887-88, to Miss Kate Haufman of Cuba, Kansas. The young couple start out with fair prospects, having 160 acres of good land entirely unincumbered, and a large stock of energy in reserve, with which to keep it so. College friends are unanimous in wishing success to them.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$120 to \$200 a year.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Wilard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, P. C. Milner; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Cobern; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

SOCIETY HALL, November 15th.

The Ionian Society was called to order by President Waugh. In the absence of the Secretary, Maude Whitney was appointed Secretary pro tem. Lizzie Myers was initiated. The programme opened with music, a chorus, by Misses Kunkle, Pearce, Barr, and Harrington, Miss Hederstrom at the organ. A select reading by Addie Vale was followed by a declamation by Dora Thompson. The *Oracle* was edited and read by Hattie McConnell. The question for debate, "Resolved, that honest poverty is better than ill-gained riches," was argued on the affirmative by Misses Houghton and Turner; on the negative by Misses Pearce and West. The Judges, Misses Short, McConnell, and Pierce, decided two to one in favor of the negative. Music, a duet, by Misses Vail and Hederstrom closed the programme. The names of Eusebia Mudge and Hortensia Harmon were proposed. Report of Critic, reading of minutes. Roll-call with quotations. Adjournment. S. E. H.

HAMILTON HALL, November 16th.

The attendance at the last meeting was above the average. The programme was opened by the following question: "Has the growth of the Society been due more to individual effort than to experience?" R. Snyder was the first speaker on this question. He gave a brief history of the Society, and cited as examples members who by their individual effort helped the Society, also stating that its growth was made largely during the first two years of its existence, so that the members had very little experience. B. Skinner, the first speaker on the negative, claimed that experience was due to individual effort rather than individual effort due to experience. After short discussions by Mr. Ayers and W. G. White, the debate was closed on the affirmative by R. Snyder, who brought some additional points on the question. The last speech was made by B. Skinner, after which the Judges, I. B. Parker, C. D. Adams, and W. J. Yeoman, decided in favor of the affirmative. The *Hamilton Recorder* was next presented by F. A. Waugh. Some of the most interesting articles were "Silence," "Parody on the 'Old Oaken Bucket,'" "Yeoman's Story," "The Desire for Company." The editorials were especially good. After a recess of ten minutes, the Society listened to a song by John D. Riddell. The declamations, one by G. H. Wheeler, entitled "Cranks," and one by Percy Leland, about "Napoleon," were both fair examples of the Society's work. Ed. Pierce read an essay, "The importance of Reading to an Education." E. C. Coburn read a brief history of the "Hamilton Society." Under discussion, Mr. Gilliford gave some reasons why he thought Canada should not be annexed to the United States. F. A. Campbell's discussion was very good. R. J. Brock gave the Society some good advice in his select reading. John Riddell rendered another selection of vocal music. Under propositions for membership, the names of S. C. Adams and F. R. Smith were proposed. Assignment of duties. Adjournment. E. C. C.

SOCIETY HALL, November 15th.

The Alpha Beta Society was called to order by President Secrest. The audience then listened to a beautiful serenade song, entitled, "Sweetly Sleeping," by Misses Jennie and Julia Greene, and Messrs. Hutto and Smith; Victor Armour, committee. Devotion, led by Mr. Armour. Roll-call. Maud Gardiner gave a declamation, entitled "Bonnie Bess." R. J. Orr then favored the audience with an original essay about "Friendship." Debate, question, "Resolved, That the Roman Catholic Church has been a detriment to the World." May Harmon opened the affirmative by referring to the condition of those countries under the domination of Catholicism. She showed that Catholics are not good citizens under any government, because they acknowledge no power superior to the Pope; that they always attempt to unite church and state, and to destroy free schools. Nellie McDonald opened the negative by showing how this church, the only Christian church for fifteen centuries, had redeemed the world from paganism. She also proved that the preservation of learning through the Middle Ages was entirely due to the Catholics. May Secrest continued the affirmative by stating that the Catholic Church has always been an enemy to self-government. Birdie Secrest on the negative showed that the Catholic Church had supplanted the heathen superstitions when no other church could have done so. The closing speeches were then made by the chief disputants, and the question submitted to the Judges. The Judges, Martha Cottrell, Maud Parker, and Mr. Reed, decided two to one in favor of the affirmative. Ella Hopkins presented the *Gleaner*; motto, "Be a Woman." It was one of the best, ably edited and well read. Recess. Under the head of extemporaneous speaking, several visitors entertained the Society. Miscellaneous business. Assignment of duties. Report of Critic. Reading of the minutes. The Music Committee then reported, and the audience was surprised to hear the familiar poem, "Mary's Lamb," set to the music, "The Union Forever," rendered by five female voices. The singers were Delpha Hoop, Lillian St. John, Nellie McDonald, Tempie McKee, and Maud Parker; Miss Corlett at the organ. The Alpha Betas feel certain that we have as good musical talent in our Society as can be found in the College. Adjournment. G. L. C.

SOCIETY HALL, November 16th.

The Webster Society was called to order promptly at 7:30 o'clock by President Martin. G. E. Stoker was appointed to act as Recording Secretary. Mr. D. E. Bundy, formerly a Webster, led the Society in devotion. The names of C. S. Green and F. S. Little were presented for consideration, after which C. S. Green was initiated. Debate on the question, "That Trade Unions are a benefit to their members," followed. Messrs. H. C. Leffingwell and D. T. Davies argued the affirmative, giving as reasons that these Unions formed a brotherhood of laborers which we might compare to the earliest divisions of trade societies in England. The members of a Union pay initiation fees, dues, etc., which are used in cases of sickness of individual members. Also, in many cases, the Unions establish reading rooms, with bath rooms in connection, which may be of vast benefit to the poor who thereby have a chance to inform themselves. The negative was argued by S. A. Waters and H. B. Walters. These gentlemen tried to show the great amount of trouble the Unions may cause their members by organized strikes and other labor panics. The affirmative gained the decision. A declamation was given by W. W. Robison. Essays, by W. T. Taylor about Niagara Falls, and S. N. Chaffee about Char-acter. We take the following from the latter essay: "If one wishes to build a character that is strong and pure, he must, as in building a beautiful mechanical structure, build with care. But character is not a structure to be built at once, but one that day by day is building either to something grand and faultless or to something weak and unreliable. How little we realize that from childhood till death we are constantly adding something to our characters, and how very important it is, then, that we should think and act with care." Reading, J. Morse. Mr. T. E. Wimer, music committee, was assisted by Messrs. Selby, Pugh, and Gist, in rendering a very entertaining parody, sung to the tune "Buelah." Discussions by P. C. Milner, Ottawa Chautauqua Assembly, and C. J. Dobbs about the poor in the larger cities; how careless and unfeeling they seemed to all things except physical needs, and how impossible it is to arouse in them a desire for a higher life. He also stated that he had proof for saying that the poor of England's large cities were not in a worse condition than those of similar cities in our own country. P. C. Milner was elected to act as Recording Secretary for the remainder of the term, and C. A. Campbell was elected a member of the Board of Directors. H. D.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

EDUCATIONAL MEETINGS.

Northwestern Kansas Teachers, Concordia, November, 28th, 29th, and 30th.
 Central Kansas Teachers, McPherson, November 29th and 30th.
 Southwest Kansas Teachers, Dodge City, November 29th and 30th.
 State Horticultural Society, Paola, December 3rd, 4th, and 5th.
 State Board of Health, Lawrence, December 4th and 5th.
 Kansas State Grange, Topeka, December 17th.
 State Teachers' Association, Topeka, December 25-27th.

Armourdale has organized a night school.

Lydia M. Jackson, a Kansas writer, has published a book of poems called "Wild Rose Petals."

The *University Courier* ought to take lessons in German, or quit writing items in that vernacular. Good English is preferable to very bad German.

Long live the King! Bethany College of Lindsborg, McPherson County, has received a present of some eight hundred volumes of literature and history from King Oscar of Sweden.

Major Henry Inman has written a new book of 200 pages called "In the Van of Empire." It will be issued at Kansas City. The story deals with Major Inman's favorite theme, early pioneer life in the west.

The Great Western Conservatory of Music of Kansas, under the management of Signor Barabini, and to be located at Topeka, has been incorporated for twenty-five years with a capital stock of \$10,000.

The literary society of McPherson College has wrestled with the important question whether or not the great Caesar was justified in crossing the Rubicon. As the sides were evenly balanced, the civilized world is in awful state of suspense, and some other literary club ought to try and settle the matter as soon as practicable.

The *Star* of the Kansas Institution for the Deaf and Dumb complains: "Some enlightened individual has presented one of our pupils a jew-sharp, one of the regular old-fashioned whangdoodle kind. The boys take turns torturing it. Now let some make the blind school happy by presenting its pupils with a spy glass or a microscope."

The *Kansas Teacher*, a patent-inside monthly just started at Wamego, Pottawatomie County, publishes a sworn statement that it will issue a 15,000 copy edition in December. It invites business men and publishers, in not less than twenty-three different items, to advertise in its columns, and claims to be read by not less than 536,000 readers. There is nothing like western enterprise.

Secretary Anna S. Wood of the Southwest Kansas Teachers' Association sends us the programme of the meeting to be held at Dodge City, November 28th and 29th. The programme is rich and interesting, and the meeting will undoubtedly be a profitable one. The members of the Association are promised free entertainment by the generous citizens of Dodge City, and it is to be hoped that there will be a large attendance.

The American Protective League offers this year, as it did last, three prizes for the best essay on protection: first prize, \$150; second, \$100; third, \$50. Last year the first prize was taken by a member of Prof. J. H. Canfield's class at the State University, refuting the charges made by politicians against his methods of teaching political economy. We understand that several students of the University are thinking of entering the race this year.

Arrangements have been made looking toward the establishment of a training school for the education of home and foreign missionaries in Kansas City, Mo. A \$50,000 building is to be erected. The teaching of the college will embrace literary, scientific, medical, and Biblical departments, also a department for preparing missionaries who wish to make the study of medicine a specialty. The college aims high, as it is intended for the "Church of America."—*Kansas Wesleyan Advocate*.

Mr. Meserve, the new Superintendent of Haskell Indian Institute at Lawrence, has the management of affairs well in hand now. The government road, for which an appropriation of \$75,000 was made last winter, will be macadamized at once, contracts having been let. A weekly paper is proposed in the near future under Mr. Meserve's supervision, with Miss Helen Ball as editor. The steam fitting for Robinson Hall, the new building, has all been put in. The corps of teachers will be doubled in number, some of them having charge

of seventy-five children, and special classes in drawing and music will be established. News from Washington is that John K. Rankin, at present Acting Assistant Superintendent, will soon receive his commission as a Special Indian Agent, with an increased salary.

AS OTHERS SEE US.

Joyous the average American! What perennial light, what bursts of glorious sunshine are his! He is stuffed with spiritual antitheses. He is not what he seems. He is pleased to display the antipodes of himself. Steeped in irony and disquietude, his word often contradicts his thought. He veils his sensibility in cynicism, his private grievance in a savage generalization. His egotism colors his world. His own opinion is the standard of right and wrong; his grinding theory pulverizes opposing facts. Notwithstanding his freedom of expressed enthusiasm, he revels in sensations. He is so wedded to contention that he bitterly enjoys the war endlessly waged between his outer and inner man. He loves to feel and create surprises. After he has been on parade, cold and shadowed, he likes to steal into his own breast and bask in the glow of his sequestered heart. He relishes, in short, his consistent inconsistency.—*Junius Henri Browne, in Globe-Democrat*.

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If there is a single trait which radically distinguishes American society, as a whole, from European society, it is a universal hopefulness and aspiration. The European Philistine, though he may not be content with his lot, rarely thinks of rising above the station to which he was born. Society appears so fixed and unyielding that it seems like presumption on his part to defy its prejudice. It requires a very exceptional courage, therefore, and talents of a high order, to aspire successfully. But in the United States aspiration is the rule, not the exception. The man who is content to remain what he is, who does not expect to rise to some dizzy height of wealth or of fame, was, until recently, a rara avis in the Western States. And as for the young women, they were animated by an ambition which in many cases was pathetic. I met, during my sojourn in Ohio and Illinois, daughters of farmers and mechanics who were cultivating themselves in secret, groping their way most pitifully, without help or guidance, and often gulping the most abominable slops under the impression that they were being intellectually nourished.—*H. H. Bojeson, in the Forum*.

GENESIS AND PROGRESS OF INVENTION.

Invention began in the Garden of Eden, when the primal pair invented the fig-leaf apron, and it has been in progress through all the hours that, since that day, have gone to join the cycles that elapsed before the creation of mankind. Every successive generation has found out something that its predecessor did not know. Not only the necessities of the race, but its unquenchable desire for extending the area of knowledge, and its natural aversion to hard work, have stimulated the inventive faculty. All that there is on this globe, except wild vegetation, wild animals, and wild men, naked and houseless as their quadrupedal companions, has come of invention. The history of invention, could it be written, would be a detailed story of mankind from Adam to the babe born today.

The grandest achievements of this godlike faculty are, however, of recent date, and they have come in such a magnificent procession, with results so marvelous, that a doubt exists in many minds as to the possibility of maintaining this pace through coming centuries. Ours is called "the age of invention," in contradistinction from past ages, but the impression is abroad that, in ages to come, ours will stand out as pre-eminently the inventive age. Why? What reason can be assigned for the supposition that a hundred years from 1889 our descendants will not be as far ahead of us in science and its applications as we are superior in that respect to our ancestors of 1789?

It is our belief that, instead of having explored the inner temple of science, we have just entered the vestibule of the outer temple. Progress is a logical necessity. Every step points and impels to another step. We cannot believe the time will ever come when no more possibilities will be presented to the inquiring mind, when science will regard its work as finished, and the inventor will lay down the prod of exploration, feeling that his occupation is gone.—*Inventive Age*.

A NEW DRAWING-ROOM CAR.

A Pullman drawing-room and sleeping-car named the "Superb," and built from entirely new designs, has just been sent south to run as a part of the "Montezuma Express" train between New Orleans and the City of Mexico. In outward appearance and finish it closely resembles the best vestibule cars built at Pullman, but its interior arrangement and finish are wholly new. It combines all of the advantages of the compartment plan with those of the best Pullman sleeping-car. Its entire length is 76 feet and 6 inches, and its width 9 feet and 8 inches. It is mounted upon improved six-wheel trucks with 42-inch Allen paper wheels, and supplied with the Westinghouse quick-acting automatic air-brakes. The car is lighted by electricity, heated by steam from the engine, has the new water-pressure system, electric bells.

The interior of the car is divided into six elegant drawing rooms, each room comfortably accommodating four or five passengers. At one end these rooms are painted in maroon and olive colors; at the other, they are finished in light Mexican and San Jago mahogany. Two adjoining rooms have sliding doors for the convenience of parties who desire to throw two rooms into one. Every room has its separate toilet. A passageway runs on one side of the car, to the center, where it crosses diagonally and runs on the opposite side. There is also a passageway in the center of the car through its whole length.

THE HOUSEHOLD ANGEL.

The glad-hearted, cheery woman who makes the best of everything is a treasure in any home. She may make mistakes, she may forget, she may spoil a dish in mixing or in baking; but if with the mishap she sends in a gleam of sunshine, a smile, a laugh, or some gay and kindly word, people forget their disappointments and make the best of what they cannot help.

Accuracy and precision are excellent; punctuality and promptness are most valuable; but "love is the fulfilling of the law," and Christian charity is greater than faith, hope, faultless housekeeping, or anything else. If you are born with sunshine in your heart, thank God for it, and let it shine out.—*Common People*.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

DISEASES OF WHEAT CAUSED BY FUNGI. II.

SMUTS.

THERE are three different wheat-smuts, belonging to two distinct genera. The loose-smut (*Ustilago segetum* (Bull.) Dittm.) converts the whole head into a black powdery mass of spores, held together by a few shreds of tissue. This smut is fully ripe at the time the wheat is in blossom; but by the time the wheat is ripe, the smut spores have all fallen; and the smutted heads are scarcely noticeable. The smut is very closely allied to the oat-smut, if, indeed, it is not identical with it. Some European experimenters, however, have been unable to infect wheat with oat-smut or oats with wheat-smut. It rarely does much damage in this State, and, in the vicinity of Manhattan, at least, is rare. It can, in all probability, be entirely prevented by soaking the seed fifteen minutes in water at a temperature of 132° F. Water at this temperature destroys all the adhering smut spores without in any way injuring the wheat; and it has been found that the infection of the plants takes place immediately after the seed has germinated, and, in almost all cases, from smut spores adhering to the grains when they were planted.

The stinking smut, so named from its penetrating and disagreeable odor, is very different from the loose-smut. It attacks only the grains, and the diseased heads cannot be distinguished from healthy ones except by close examination. The diseased kernels have the seed-coat, or testa, intact, but are of a dirty color, and are somewhat swollen, often having the furrow nearly obliterated. When crushed, they are seen to be filled with a mass of brown spores. The kernels in a single head are either all healthy or all smutted. The smutted grains remain with the healthy ones, even when the grain is threshed; and every time the wheat is handled smutted kernels are broken, and the smut spores become attached to the surrounding grains. The infection of the plants takes place, as in case of loose-smut, immediately after the germination of the seed, and likewise from smut spores adhering to the grains when planted. Seed from smutted fields will produce a smutted crop, so the disease is a perennial one. Fortunately, however, this smut spreads scarcely at all except through the seed.

As in the case of loose-smut, soaking the seed fifteen minutes in water at 132° F. will prevent the disease. The seed is often soaked in a solution of copper sulphate, but if the solution is strong enough to kill all of the adhering smut spores, the germinating power of the seed is considerably injured. No such objection can be raised to the hot-water treatment.

The two parasites causing stinking smut belong to distinct but very closely allied species. The one (*Tilletia foetens* (B. & C.) Trel.) has oval or sub-globose spores with smooth walls, while the other (*Tilletia Tritici* (Bjerk.) Wint.) has globose spores, with walls marked with a network of ridges. Both produce identical effects on the wheat, and they can be separated only by a microscope. Both species are common in Europe and in Eastern United States, and are quite destructive in the western part of Kansas. Besides reducing the crop, these smuts greatly injure the sound grain for flour.

LEAF-SPOT.

This imperfectly known disease is caused by a species of *Septoria*. It makes the lower leaves of the growing plants turn brown and finally die. A careful examination of the diseased leaves shows that they are marked with numerous minute black specks which are usually in indefinite elongated

spots, or areas, of the leaf. These black specks consist of small sunken perithecia, containing very numerous colorless needle-shaped spores. It is probable that this is only the summer stage of some fungus whose winter stage is yet unknown; but it is, however, quite possible that this winter stage is some one of the many fungi found on the dead stubble and fallen straw. This *Septoria*, like the summer stage of rusts and mildews, is perhaps capable of passing the winter on young plants. On October 28th, 1889, specimens were collected in a wheat-field at Manhattan which had perithecia containing an abundance of ripe spores. This fungus is by no means uncommon in Kansas, but the injuries it causes are usually confused with those caused by the rusts. In the present state of our knowledge, no remedies can be proposed for the disease.

The following table shows the number of species, and also the number of life stages included in these articles:—

Name of Disease.	Number of Species.	Number of Life Forms.
Rusts.....	3	9
Mildew.....	1	2
Smuts.....	3	3
Leaf-Spot.....	1	1(?)
Total.....	8	15

These four diseases include all the important fungous enemies of the wheat hitherto found in Kansas. Others will likely be found, but it is probable that these will always be the most destructive.—*Assistant Swingle.*

GUNPOWDER.

FOR over five hundred years, gunpowder has been used as a projectile force in fire-arms. While its composition is much the same today that it was when first introduced, some change in the proportion of the ingredients, and improved methods of manufacture, have made the modern powder much more effective than the old "meal-powder" first used. Notwithstanding the improvements made, only about 32 per cent of our present powder is converted into gas, or projectile force, and the balance remains as a solid. Many inventions have, from time to time, been brought forward by their discoverers as substitutes for gunpowder, but the common black gunpowder has never been driven from the field. Each new discovery, on being tested, has developed some insuperable obstacle to its use in fire-arms.

An explosive for fire-arms must give the maximum propelling force to the minimum of initial pressure in the bore of the gun, must keep well in store, be certain in its action, and, when exploded, the products of the combustion should neither foul the gun nor act injuriously on the metal. These conditions, until recently, were fulfilled only by gunpowder. New inventions have now put in an appearance for which, according to report, much more is claimed than the old powder can do. That they are all that is claimed for them is open to doubt. The Lebel powder of France which gave such brilliant results at first, and the secret of whose composition was so carefully guarded, seemed to fulfill all the conditions and be far superior to gunpowder. But now comes the report that it deteriorates with age, and after a few months is no better than gunpowder, and that France is abandoning its manufacture. The Belgian "paper powder" in order to give the great initial velocity of nearly 2,400 feet per second, of which it is capable, gives too great an initial strain, and experts claim it must be reduced before it can be extensively used. The Belgian government has adopted it, but the initial velocity is to be reduced to 1,968 feet per second. Italy has a new powder,

or explosive, on trial, and Germany has adopted one—the invention of an American.

For most of these explosives the claim is made that they are smokeless; and for Germany's, that it is noiseless and without recoil. There is no doubt that the new powder of Germany is practically smokeless, and that when fired with blank cartridges is comparatively noiseless; but it does not follow that it would be noiseless with ball cartridges. One expert interviewed on the subject pronounces "powder without detonation or recoil a chimera, and contrary to the laws of mechanics." That something new has been discovered in explosives, there is no doubt, but just what, and what its value, if it has any, is not yet given to the public. It is not yet certain that our noisy powder must go,—that a substitute has been found which better fulfills the requirements of a military explosive.—*Lieut. Morrison.*

KANSAS AGRICULTURE.

It has been stated that no State has been the subject of so much exaggeration as Kansas, and that, of all the liars since the father of lies went into business, the Kansas real-estate liar has removed the fruit-cake from the stand and lifted the linen from the shrubbery. But, on the other hand, all of you are witnesses that no other State has ever been so abused as Kansas. I have myself heard men say that this whole homestead business was a game of chance, the Government putting up a quarter-section against the entryman's eighteen dollars that he would not stay there. If the alleged advantages of the State have been advertised at great expense, its alleged disadvantages have been proclaimed free gratis, for nothing. Twice in the history of Kansas, in 1860 and in 1874, the East has been covered with missionaries of defeat, apostles of disaster, heralds of ruin, for the most part our own citizens, who in the name of "Aid" proclaimed Kansas a famine-smitten land beside which the Desert of Sahara was a blooming conservatory and a flourishing market-garden. In 1860, it was announced that in stricken Kansas "acorns had been used for food and the barks of trees for clothing," and an aid-seeker in 1874, or, rather, in the spring of 1875, stated that the grasshoppers had poisoned the grass so that it made the cattle's mouths sore to eat it, which called forth another statement to the effect that this poison not only affected the mouths of the cattle, but decayed their teeth so that a certain farmer in a northeastern Kansas county had expended his entire fortune in cotton and oil of cloves to stuff in the old cows' grinders. Besides what we have done ourselves, against ourselves, every fugitive from Kansas to his father-in-law's mansion beyond the Wabash has spread the tale of misery and destitution, and there never was a newspaper beyond the Mississippi that did not gladly publish all the letters and communications offered it in regard to the worthlessness of Kansas.

Between the possibly too-glowing eulogist of Kansas and the reckless defamer, the truth has been discovered through the teachings of experience.

It has been discovered that Kansas is, first of all, an agricultural and pastoral State. It has been definitely ascertained that this is not a lumbering or mining country; it is not Wisconsin or Pennsylvania, but Kansas—fifty-two million acres.

The numerous holes bored in the ground at public expense have settled the fact that the wealth of Kansas does not lie 1,000 or 1,200 feet below the surface, but within eighteen inches of it, that the farmer and stock-raiser, probably a combination of both, is the coming man, the sole hope of the State.

Now, in the view of the settled facts about Kansas, what should the Kansas farmer do?

In the first place, he should brace up.

It is believed, and with reason, by non-farmers, that the Kansas farmer is the most inveterate growler under the canopy, and that a beneficent and all-powerful Providence cannot make weather to suit him. He is depressed by adversity, and he is not elated by prosperity. But the other day a friend of mine was congratulating a Kansas farmer on the big corn crop. "Oh, yes," said the congratulated, "but it will be an awful amount of work to shuck it." In the course of my newspa-

per work in a Kansas county I once agreed to run an "agricultural column" provided it could be filled with original matter. As a result I was flooded with communications to the effect that the county had enjoyed but three good crop years in eighteen, and that the farmers were on the verge of pauperism. All suggestions as to the raising of this product or that were met by vigorous declarations that it had been tried and failed. As, in my judgment, the object of a county newspaper was not to proclaim its county to the world as a hopeless and irreclaimable desert, that agricultural column was discontinued.

With a cessation of this chronic growling should come a declared purpose to stay with Kansas. The Kansas farmer should no longer spend his time on the ridge-pole of his house straining his eyes across the prairie looking for somebody to come from the East and buy him out. No man ever made the most of a farm he proposed to leave at the first opportunity.

There is an aged story of an Irish gentleman who had an old servant who was a great aggravation. At last, after a quarrel of unusual proportions, the master said, "This is intolerable, and we must part." "And where," asked the aged servitor, "does your honor intend to go?" And if he leaves Kansas, where does the Kansas man, farmer or other, then "intend to go?"

Does he desire to go to the northward, and meet the blizzard half way? Do the drifting red sands and bitter streams of Oklahoma present advantages superior to Kansas? Are the hot winds that occasionally visit us so attractive that they are to be sought at their source? Does that broken bladder, the California boom, still woo him? Are the arid slopes of the Rocky Mountains more desirable than the prairies of the State shown by indisputable figures to be this year the banner corn State of the Union? Would the Kansas man like to try again the fathomless mud of Illinois, where for two months in the year the horses go around with their tails tied up in a ball at high-water mark?

But there is no necessity for taking the word of the real estate men, or of the much-belabored Kansas newspapers. Just consider the fact that Kansas, year after year, ships flour north, south, east, and west. You can find that out by visiting the railroad depot platform. When you have found a State that does that, you have found the agricultural center, and you should not fail to impress the fact upon your memory.—*Extract from Noble L. Prentiss's Clay County Fair Address.*

THE LAW OF TRUSTS.

Remarking upon the recent affirmation of Judge Barrett's decision by the Supreme Court of New York, the *St. Louis Grocer* adds the following: "The case will be carried to the Court of Appeals, but we do not believe there will be any reversal of the decision as it now stands. The decision is merely the voice of authority confirming the general opinion that a corporation cannot lend itself to the formation of a trust. Those who imagine that this decision will kill the trust are mistaken. It will kill the technical thing, but the sugar people will merely incorporate and merge all their refineries together under one management. Then they will be as any other corporation, and amenable to law. But the company will influence the sugar trade just as the trust does now. There will be a change of name, but no change in methods. We have no idea that the refineries will ever run singly again, for the advantages of a central control have been too well established. The combine refineries have been in a position to make profits, which under independent management they could not do. The multitarian will turn unitarian."

AMERICAN BEEVES IN GERMANY.

Commercial Agent Smith at Mayence, Germany, reports that the prevalence of high prices for meat in Germany has caused a firm of butchers in Mayence to try the experiment of importing live oxen from the United States, and that arrangements have been made for the shipment from Illinois to Germany of 900 head of fat oxen within a period of two months. He is informed that this is the first time that live oxen from the United States have been imported into Germany. The first lot of cattle arrived the week preceding Mr. Smith's report. The animals are sold at a price from three to fifteen per cent less than the German cattle, notwithstanding that according to the importers' statement it costs \$50 for transportation and \$7.50 customs duty for each animal imported.

ARID LANDS AND IRRIGATION.

The arid region of the United States extends from about the 100th meridian of west longitude to the Sierra Nevada range and the Pacific Ocean. Approximately, its dimensions are 1,200 miles from north to south, and 1,300 miles from east to west. It contains, in round numbers, one thousand million acres of land. According to Major John W. Powell, Director of the Geological Survey, it embraces about four-tenths of the total area of the United States, exclusive of Alaska. For many years the arid region was known as the "Great American Desert." This designation, with respect to one characteristic, was apparently correct—its rain-fall is not sufficient for the needs of agriculture. But in other important particulars it is glaringly incorrect and misleading. When supplied with water, its soil is highly productive. A given amount of labor and capital expended in agricultural pursuits in the arid region will, by means of irrigation, produce much larger results than in the rain-fall area. This is an economic and commercial fact of the highest importance. The area of agricultural lands susceptible of reclamation by means of irrigation is variously estimated at from 125,000,000 to 200,000,000 acres. Even 125,000,000 acres is sufficient for the agricultural area of a mighty empire. It is nine times the area of the improved land in farms of Pennsylvania, eight times that of New York, and 60 per cent more than that of all the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida combined. But every acre of irrigated land is about twice as productive as lands dependent upon the natural rain-fall. This has been demonstrated beyond all doubt by thousands of brave settlers who, under the provisions of our desert land law, have already reclaimed about 7,000,000 acres of land by means of irrigation. The great practical question which now confronts the country is, How can we, by a large and comprehensive scheme of irrigation, reclaim from 120,000,000 to 200,000,000 acres more of this vast region? Happily we are not left to the uncertain results of tentative enterprise in the attempt to solve this great problem of the age, for it has been solved again and again in other countries, and under natural conditions quite similar to those which characterize the arid region of the United States.—*Joseph Nimmon, Jr., in Frank Leslie's Illustrated Newspaper.*

TO MAKE FARMING PAY.

In a single sentence, it is to give close attention to details, if farming is to pay. And some of these details may be considered as follows:—

Have good animals on the farm, from the smallest to the largest—from bees through every grade to the 2,000-pound oxen.

Be careful of this stock, especially in the matter of housing and feeding it. The feeding should be adapted to the needs of the animal to be fed, and must be liberal.

The fertilizer made on the farm should be carefully saved, should be fitted for the different crops by any purchased additions needed, and should be applied in quantities best adapted to the land planted.

The preparation of the land should be thorough, the land planted at the proper time, and the cultivation go on methodically, and nothing be neglected to insure an abundant yield.

Hire good help, and keep them at work steadily on the farm, just as the manufacturer would do in his factory. Remember, also, you are hiring yourself; and if you would be paid, you must work steadily and well.

Have good agricultural implements to work with—not necessarily expensive ones, but such as are strong, durable, and effective. Those which save manual labor largely are desirable.

Work only as much land as you can thoroughly enrich and work to advantage. The day is past for skimming superficially over vast fields and gathering little more than the wind.

Put your produce in good shape for the market, deliver it properly, and get a good price for it.

It is in this way that wide-awake men make farming pay as well as, or better than; any other laborious pursuit.—*Maryland Farmer.*

Hundreds of cars of corn are being shipped from Butler County to Baltimore for export.

CALENDAR.

1889-90.
 Fall Term—September 12th to December 20th.
 Winter Term—January 7th to March 28th.
 Spring Term—March 31st to June 11th.
 June 11th, Commencement.
 1890-91.
 Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Olin delivered an address upon "Personality" at the meeting of the Northwestern Teachers' Association at Concordia, yesterday.

Prof. Shelton was in Topeka last week to arrange for the publication of his report upon a recent experiment in pig-feeding completed this week.

It is catalogues for years prior to 1888-9 that are needed by the Secretary—the "old things," out of date and useless except for completing sets. These will be gladly received still.

Secretary Graham is announced to give his lecture, "Men Who Get Side-tracked," at the first county meeting of the Riley County Teachers' Association, to be held at Leonardville, December 6th.

The Faculty and Faculty wives have enjoyed this week a most enjoyable treat in a tea party by installments at the home of Prof. and Mrs. Failyer. We jointly and severally unite in praise of this grateful addition to the good things of Thanksgiving week.

Some fifteen students from abroad found time to go home for the Thanksgiving dinner, and nearly as many more gave greeting to friends from home. The multitude rejoiced over the good cheer furnished by their good matrons in the various boarding houses.

Ex-Regent C. A. Leland of El Dorado called with Mrs. Leland on Wednesday, and spent the forenoon in looking over the improvement of the past three years. They came to spend Thanksgiving with their son Percy, a student here, taking him with them to Topeka for the day.

Mr. John R. Coffroth of La Fayette, Ind., and Mr. E. H. Kleinschmidt of Cincinnati, O., were interested visitors at the College yesterday afternoon. Mr. Coffroth was for many years President of the Board of Trustees for Purdue University, and feels especial interest in such institutions.

Prof. E. B. Davenport, recently appointed to the Chair of Agriculture in the Michigan Agricultural College, is spending a few days at this College in study of our work and ways. Mrs. Davenport accompanies him, and will find interest for herself in other departments. President Fairchild is glad to welcome Prof. Davenport as a friend and former pupil.

Prof. and Mrs. Shelton are the happy recipients this week of a visit from a brother of Mrs. Shelton, Mr. F. A. Sessions of Ionia, Mich. Mr. Sessions and Prof. Shelton were classmates, of the Class of '71, in the Michigan Agricultural College, and so pupils together under the guidance of Pres. Fairchild through rhetoric, English literature, and political economy in their course. Mr. Sessions views with satisfaction the improvements at the College since a former visit in 1878.

The firm of Schaeffer & Budenberg of New York, manufacturers and dealers in engineers' supplies and test apparatus, has presented to the Mechanical Department a valuable instrument for its use in connection with steam-engine tests—an Amsler's polar planometer, designed to give accurately the area in square inches of any plane surface of irregular outline traced by its point. It is used specially for determining the area of indicator diagrams taken from an engine. The instrument is valued at \$25. The generosity of the firm in presenting such a standard instrument of value is greatly appreciated.

The *Western Rural* of Chicago is an earnest advocate of the interests of farmers against all oppressive trusts and combinations. Its record for the past twenty-five years is a proof of what it will do in the future. Those who take it may expect energetic attacks upon every form of greed that wrongs the farmers, and these will not be few nor far between. If we sometimes miss the

articles that might develop a stronger agriculture, it is because there is so much to say against its enemies. The price is \$1.50 in single subscriptions, \$1.30 in clubs. Address Milton George, Chicago Illinois.

The lecture of yesterday, given by Superintendent Thompson, dwelt in an entertaining way upon "Manly Development from Sports." Speaking from both experience and observation, the Superintendent gave emphasis to the growth of manly strength, grace, skill, and character in a genuine sportsman, either as a lineal descendant of Nimrod, "the mighty hunter before the Lord," or a meek disciple of Isaak Walton of piscatorial fame. He traced the boy from his first angling for bull-heads on to his ramble through the Rockies "loaded for bear," claiming that each experience brought something of the training of an athlete and something of the contemplation of a philosopher. Distinctions were clearly traced between the "sport" who affects a love for pursuit of game and the genuine hunter or fisherman.

The College social of Thanksgiving evening was a pronounced success. Early in the evening the chapel was filled with students, graduates, and parents, who expected entertainment from indications of preparations on the stage. The College Orchestra gave a selection in good style to open the exercises, after which a song, entitled "The Mistletoe Bough," was most distinctly and sweetly sung by Miss Julia Greene. This song was then illustrated in pantomimic scenes portraying the wedding, the gay reception, the hiding of the bride in the huge chest in the garret, the solemn prayer over the loss, the discovery by children playing there, and the recognition by the gray-headed groom of the relics from his long-lost bride. The multitudes then scattered to the various centers of game and jollity presided over by sub-committees from the Fourth-year class. Never was an hour at the College better filled with those social amenities that make acquaintances of comparative strangers and break the ice of formal meetings. At half-past ten the halls were vacated, and the Thanksgiving social of 1889 became only a pleasant memory.

The Special Session of the Webster Society last Saturday evening was an occasion of pleasant comment from all of the 250 persons who filled the Society Hall. The programme as given below was carried out in full, occupying an hour and a half most agreeably. All the parts showed preparation and earnestness on the part of the speakers. Outsiders might feel that in general the Society cultivates a declamatory style of speaking that hides somewhat the full intent of the speaker and prevents the finer inflections by which a true orator sways his audience in judgment and emotion. It would be well for Society critics to remember that the intense oratory of Wendell Phillips and of Henry Ward Beecher was simply talking earnestly.

PROGRAMME.	
Music	Warriors' Joy
WEBSTER GLEE CLUB	
Invocation	
Address	Our Constitution
H. N. WHITFORD	
Debate, Question, "Resolved, That the present condition of affairs in the United States predicts a prosperous future."	
Affirmative, J. N. BRIDGMAN	
Negative, C. A. CAMPBELL	
Music	Cricket on the Hearth
WEBSTER ORCHESTRA	
Declamation	Death of Garfield
J. A. DAVIS	
Address	Pan American Congress
H. W. AVERY	
Webster Reporter	H. DARNELL
Music	Sweet and Low
QUINTETTE	
Oration	Our Intellectual Development
G. E. STOKER	

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

GRADUATES AND FORMER STUDENTS.

Albert Ramsey, student of last year, came from Solomon City to see old friends on Wednesday.

D. E. Bundy, '89, found time to give the Websters the grace of his presence at the Special Session.

W. H. Olin, '89, was among the guests of the Webster Society at the Special Session last Saturday evening.

Emma L. Kittlaus, student in 1887-8, writes from her home in Leavenworth in behalf of a would-be student here.

R. U. Waldraven, '89, was a visitor last Saturday. It is pleasant for him to drop in when school is over for the week.

F. C. Sears, Third-year in 1888-89, and Winnie Cotton, student in 1887-88, were present at the social on Thanksgiving evening.

Belle Selby, '82, after a severe course of study in New York art schools, is recuperating strained nerves in a visit with relatives at Manhattan.

G. B. Rogers, student in 1886-7, is spending a few days in the College Library while his pupils have a three-weeks' vacation for corn-shucking.

Augusta C. Anderson, student of last year, writes that she is teaching the "home" school at Chalk Mound, and hopes in the near future to return to the College for further study.

H. H. Hopkins, Second-year in 1880, and now railroad agent at Hastings, Neb., spent a few days of the past week, in company with his new wife, in visiting his parents, who live on College Hill.

News comes from Coal Creek, Colorado, through an applicant for a catalogue, that D. R. Jenkins, Second-year in 1882-3, and T. T. Williams, student in the same year, are doing well there.

"Lieut. Eli A. Helmick, U. S. A., Lizzie A. Clarke, married, Wednesday, November 20th, 1889, Jamestown, R. I." Both were students here in 1882-3. Their address hereafter is Fort Spokane, Washington.

Clarence E. Wood, '79, after spending a year in California, has settled in Denver, Col., where he supports a wife and little daughter by work as printer in the office of the *Republican*. He is earning money to buy a farm by the art he learned while at College.

A larger number than usual of College graduates graced the social this week. There were present, either as hosts or guests, the following: Nellie Sawyer *Kedzie*, '76; G. H. Failyer, '77; Grace Parker *Perry*, '80; Belle Selby, '82; Phoebe E. Haines and J. T. Willard of '83; H. A. Platt, E. O. Sisson, and W. E. Whaley of '86; C. M. Breese, W. J. G. Burtis, F. B. Elliot, F. G. Kimball, and F. A. Marlatt of '87; Bertha H. Bachellor, H. W. Jones, and Abbie L. Marlatt of '88; Emma Allen, J. W. Bayles, J. H. Criswell, A. B. Kimball, Mary C. Lee, A. A. Mills, Susan W. Nichols, Jane C. Tunnell, and H. S. Willard of '89.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

EDUCATIONAL MEETINGS.

State Horticultural Society, Paola, December 3rd, 4th, and 5th.
State Board of Health, Lawrence, December 4th and 5th.
Kansas State Grange, Topeka, December 17th.
State Teachers' Association, Topeka, December 25-27th.]

An examination of the pockets of a number of boys in the public schools of Wichita brought forth a considerable and assorted collection of revolvers.

The Typographical Union of this city has inaugurated a movement to erect a monument in the State House square to the late ex-Governor John A. Martin.—*Topeka Capital*.

Prof. Cragin recently received a very fine collection of shells from the Sandwich Islands, presented by John Montgomery. He also received another collection from Guaymas, Mexico, that was given by Mrs. Addie Willetts. Mrs. Willetts, formerly Miss Addie Farnsworth, was at one time a student at Washburn.—*Washburn Argo*.

The defalcation of Treasurer James E. Fortner of Riley County has caused much discomfort or suffering among the one hundred teachers of the County. Many of them have not drawn a cent of pay for the school year, and the prospects are that there will be no money to pay until New Year. Several districts which have school-house payments to make are talking of closing school for the winter months.

Professor George E. Curtis, of Washington, D. C., lately Professor of Mathematics at Washburn College, Topeka, has been engaged to define meteorological terms for the Century dictionary. The proprietors of this great work have secured the services of an experienced meteorologist. The Smithsonian Institution has also requested him to prepare its annual report of meteorology.—*Washburn Argo*.

The convention of the colleges which take part in the State Oratorical contest met at Emporia, Nov. 15th, and made arrangements to hold the next contest in Lawrence sometime in February. The following judges were selected: On Delivery, Ware of Fort Scott, Bowers of Peabody, and Fenlon of Leavenworth; on Thought and Composition, Ray of Topeka, Benson of Ottawa, and Johnson of Garnett.

The Valley Falls *Republican* says: "In our opinion an ordinance is needed to restrain our boys. That boys, small boys, should congregate on the streets, in alleys, and on corners after dark is an unmitigated evil. There is not an atom of good in it. It is a nursery for crime from which come the graduates for the prison or the reform school. We have an example in a neighboring town. Laws are made for the protection of society; let us enact laws for the protection of our boys. 'Train up a child in the way he should go, and when he is old he will not depart from it,' is a true saying now as in the days of Solomon." We fully agree with the *Republican* in the last part of the argument, but expect very little of the ordinance. Where the parents fail to do their duty, the policeman can do next to nothing for the boy. The danger is that the policeman will spoil the good there is left in the wayward street Arab.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Mariatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, P. C. Milner; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, November 22nd.

The Ionian Society was called to order at a quarter past two o'clock, by President Waugh. The Society joined in singing and devotion. Roll-call was followed by the initiation of Eusebia Mudge, and Hortensia Harmon. The programme opened with music, an instrumental solo, by Phoebe Turner. The next was a select reading by Jennie Selby. Parliamentary practice for ten minutes, after which the Society listened to the reading of the *Oracle* by Hattie McConnell, in the absence of the editor, Anna McConnell. Music, a solo, by Fannie Waugh. Report of Critic. Reading of the minutes. Music, a chorus, by Misses Pearce, Vail, Short, and Pierce; Miss Hederstrom accompanying them on the organ. Adjournment. S. E. H.

HAMILTON HALL, November 23rd.

The Hamilton Society was called to order by President Van Zile at 7:30. After making some changes in the minutes of the previous meeting, the Society proceeded to ballot on the names of F. R. Smith and S. C. McAdams. Mr. Smith was initiated a member. To open the evening programme, Frank Yeoman read his essay, "The Freshman's Views." Mr. Umbarger, in his essay, told of the "Kansas Drought" and the suffering it caused the farmers of the western part of the State. The question for debate was, "Is the duelist a murderer?" The two principals on the debate were C. E. Yeoman on the affirmative and W. S. Pape as his opponent. After a somewhat lengthy discussion by these two members, H. R. Phillips and W. J. Town further discussed the question. The Judges, A. O. Wright, M. G. Riddell, and Sam'l Balderston, decided the question in favor of the negative. After recess, E. M. Blachly, as music committee, assisted by A. T. Ellsworth and F. A. Campbell, rendered a very appropriate vocal selection. H. E. Moore, in an oration, discussed the character of U. S. Grant. He seemed to intimate that too much credit was given to General Grant. For the evening lesson, A. K. Midgley read a piece of poetry. This was very good. G. V. Johnson delivered a good oration, "The Selection of a Profession," bringing forth the fact that the saying, "Select a profession that you like, and then turn your whole attention to it," was much easier to say than to put into practice. Byron Bateman and A. T. Ellsworth gave their views of some important questions. G. L. Gilbert told of the introduction of railroads in the United States, and the progress that has been made in this direction since then. Geo. W. Wildin, in his discussion, described three methods of building cable bridges. The discussion was both interesting and instructive. E. M. Blachly sang another song. S. C. McAdams was initiated a member. Report of Critic. Adjournment. C. E. C.

SOCIETY HALL, November 22nd.

The Alpha Beta Society was called to order by Vice-President Smith. The congregation joined in singing a familiar hymn, after which Victor Armour led in devotion. Roll-call. Martha Campbell rendered an interesting declamation. We next listened to an oration, entitled "Capital Punishment," by Sadie Moore. She made a thrilling appeal in behalf of those fellow-beings who are so unfortunate as to fall a prey to this cruel law. Before she had finished, the audience felt the force of her argument, that human life is more sacred than law, and greeted her with applause. Debate, question, "Resolved, That Chicago rather than New York should be chosen for the place of the world's fair." Grace Clarke opened the affirmative, by comparing the advantages of the site of Chicago with those of New York; she showed that the former is a new city with beautiful buildings, while the latter is old and decaying. F. E. Way opened the negative by giving figures that convey some idea of the size and beauty of Central Park. He proved that New York is the more convenient place because situated near the sea coast. J. F. Odle, on the affirmative, stated that foreigners would be more likely to come to see our country than our largest city. Sarah Cottrell, on the negative, said that Chicago should give up to New York, because it is right for youths to give up to their elders. The Judges, Misses Hoop and Newell, and Mr. Walker, decided two to one in favor of the negative. May Harman presented a very interesting and instructive *Gleaner*, motto, "Liberty and Responsibility." Recess. The music committee, Miss Baxter, reported, and Messrs. Orr and Westgate and Misses Senn and Parker favored the Society with a beautiful song entitled "Only a Message from Home." Informal speeches. Miscellaneous business. Assignment of duties. Report of Critic. Reading of the minutes. Misses Senn and Hopkins favored the audience with a song entitled "I'll Take You Home Again, Kathleen." Adjournment. G. L. C.

SOCIETY HALL, November 23rd.

The Special Session of the Webster Society was called to order, after which Pres. Martin, in a few brief remarks, explained the object of the Society in calling in some of its friends on the occasion. The programme began with vocal music, "Warrior's Joy," by the Webster Glee Club. President Fairchild led in devotion. H. N. Whitford addressed the Society on the subject "Our Constitution," of which we give an extract from the closing sentences: "A full century has gone by. We stand today the first nation on the face of the globe. The sword of devastation has swept over Europe to establish the principles unfolded in our Constitution. The South American Colonies have revolted and fallen into line. The lovers of liberty in Europe point at us and say, there is our model, there is where men are born free and equal, and where they have a government which is truly of the people, for the people, and by the people." Debate followed on the question, "Resolved, That the present condition of affairs in the United States predicts a prosperous future." Argued affirmatively by J. N. Bridgman, and negatively by C. A. Campbell. Mr. Bridgman opened his argument with a brief review of the early history of Greece and Rome. He spoke of their lack of central government; the inequality of legislative matters, and the limited education of the people. Against these features he contrasted our own present condition. "When the words 'our country' are pronounced, we think not of any one State but of the whole extent from North to South, from sea to sea, over which floats an unrent flag." The wealth of our soils, the free school system, and the freedom of religious toleration, were each mentioned with due significance. The laborer was given his due: "Here the laborer is looked upon as a man, and is treated as such." Mr. Campbell answered by taking into consideration the unequal distribution of wealth. "There may be named ten persons who own \$100,000,000 each. Statistics show that 25,000 people own and control one-half of the wealth of the nation. No such amount of concentrated wealth exists in any other country in the world. The laborer's condition is not as good as it seems. Higher wages they may receive, but for everything they eat, wear, and use they are made to pay a double price. Bribery is a common thing; and, since the ballot is the laboring man's stronghold, the people can never prosper while even some of our offices are filled by this means. Our religious state is in a more critical condition than shown, for, outside of France, America contains more infidels than any other country." The discussion was interesting. The debate was followed by instrumental music, "Cricket on the Hearth," after which J. A. Davis gave a declamation, entitled "Death of Garfield." H. W. Avery then gave an address, "The Pan-American Congress," from which we quote: "For the first time in our history a national

question has come before the people that has met universal favor. Party lines are lost, producer and consumer are ardent advocates of the cause, while Europe awaits with anxiety the result of the probable consolidation of the western world. If the conference succeeds, we may look forward to a time when the metric system will be universal throughout the three Americas. With uniform weights and measures, will come an international currency. Then a dollar in Washington will be a dollar in the whole Southern Continent. It will measure the sugar of Brazil, and the manufactured articles of the United States." The Webster Reporter was presented by H. Darnell. The next feature of the programme was a piece of vocal music, "Sweet and Low." G. E. Stoker gave the closing oration, on the subject, "Our Intellectual Development." We give a few of his closing thoughts: "Behind us lies a great expanse of human effort, human progress. The present with its work lies around us, majestic and proud. Before us, reaching out and on to eternity, is boundless time with its unconquered antagonists. There are fields of conquest for every human being. Responsibility, like some great pillar of the state, rests with proud reliance upon the shoulders of the people of the present. Through them are to work and act the great problems that will influence their future generations. Let them not be short-sighted to the position they occupy. Let them come to realize that the work to be done in this modern civilization requires the utmost thought and understanding." The committee on music was B. H. Pugh. The audience expressed themselves as being very favorably impressed with the entire entertainment. H. D.

KINDRED INSTITUTIONS.

Mrs. Emma P. Ewing, formerly of Iowa Agricultural College, and lately of Purdue University, has established a School of Household Science at 1213 East Thirteenth Street, Kansas City, Mo.

The convention of Agricultural Colleges and Experiment Stations held at Washington Nov. 12-15th brought into pleasant acquaintance nearly a hundred workers from all parts of the Union. Of course the larger representation was from the neighboring States, but Nebraska, Kansas, and even New Mexico had delegates.

The greater portion of the three-days' session was taken up with discussions of general matters of management and organization; but several sessions of Committees on Agriculture, Botany, Chemistry, Entomology, and Horticulture proved the advantage to come in future by full organization for just such work. Such organization was accomplished, and future meetings will have the advantage of provision beforehand for full discussion of special topics.

The proceedings were taken in full, and will doubtless be published in due time by the Department of Agriculture. The officers for the ensuing year include for President, J. H. Smart, of Purdue University, Ind.; for Secretary, H. P. Armsby, of Pennsylvania State College; and for Chairman of Executive Committee, H. E. Alvord, of Maryland Agricultural College. The place of next year's meeting was not fixed, but the general understanding without opposition was that the Convention should meet somewhere west of the Ohio.

We note the following bulletins of Experiment Stations recently received:—

Mississippi, No. 10, Dishorning, pp. 11.
Florida, No. 4, Peach-growing, pp. 16. Annual Report, pp. 4.
Rhode Island, No. 1, Organization, pp. 12.
Wisconsin, No. 21, Comparative value of warm and cold water for milch cows in winter, pp. 30.
Virginia, No. 2, 1883-90, Orchard, pp. 8. Small fruits, pp. 5.
New York, Cornell, No. X., Tomatoes, pp. 14.
West Virginia, Annual Report, 1887-88, pp. 38.
Colorado No. 9, Soils and Alkali, fertility, irrigation, etc., pp. 27.
Alabama, No. 7, Dairy, pp. 6, Horticulture, pp. 8., Meteorology, pp. 3. Biology, pp. 2.
Connecticut, Storrs, No. 5, Atmospheric nitrogen as plant food, pp. 19.
California, No. 83, The rise of the Alkali in the San Joaquin Valley, pp. 4.
Vermont, No. 17, Test of Dairy Cows at State Fair, pp. 15.
Massachusetts, No. 35, Feeding Experiments with Milch Cows pp. 12.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentage and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

PLAINS FARMING. I.

EASTERN AND WESTERN KANSAS COMPARED.

THE journey from the east to the west line of the State, and on to the crest of the Rocky Mountains, is steadily one of ascent, the rate of increase in elevation increasing enormously as we near the western limits of the State. Thus, at Kansas City, on the Missouri River, the altitude above sea level is 763 feet; at Manhattan, one hundred and eighteen miles west, it is 1,042 feet above sea level; at Ellis, three hundred and two miles from the Missouri River, it is 2,135 feet in altitude; while at Monotony, a station on the Union Pacific Railway, a few miles distant from the Kansas-Colorado line, an altitude of 3,741 feet is attained. Coincident with this change in elevation, a gradual but none the less striking variation in scenery, climate, and the character of the soil and its productions is noticeable. The soil changes in color from deep black in the East to light brown or yellow in the West; the grasses become shorter and thinner on the ground, while timber trees are not only much less numerous, but are scrubby, stunted, and gnarled, and their growth is strictly limited to the immediate vicinity of water courses. Several counties in the extreme West are reported to have no native forest trees of any kind. These are not mere seasonal, superficial, and temporary indications which the agriculturist may safely disregard; they are fundamental facts, due to differences in elevation or position in respect to the more elevated regions west, and to variations in climate. They have existed since long before historical times, and are certain not to be changed by the agency of man. The variation in rain-fall—the fact of chief importance to agriculture—as progress is made west, strikingly illustrates the general trend as well as the nature of the varying conditions above referred to: thus, at Fort Leavenworth, the annual rain-fall is 38 inches; at Topeka, 32; Manhattan, 30; Salina, 29; Fort Hays, 22; Wa Keeney, 19; and Fort Wallace, 13 inches, omitting unimportant fractions in each case.

The plain inference from these facts seems to me to be that the agriculture of Western Kansas, whether practiced with or without irrigation, must differ from that which experience has shown to be best for Eastern Kansas. The grand mistake made so far in the attempt at the settlement of Western Kansas, and the cause of nine-tenths of the failures and distress that have so repeatedly overtaken the people of that unfortunate section, has been the practical assumption by them that crops and a system of farming that have proved successful in a region having 32 inches of rain-fall, could accommodate themselves to a section which was watered with less than 20 inches of annual rains.

THE SOIL AND CLIMATE.

Here and there sand hills, isolated and in chains, diversify the landscape of Western Kansas, and narrow stretches of rough, broken country are occasionally met. On the whole, however, the "lay of the land," from an agricultural standpoint, leaves almost nothing to be desired. The surface by townships, often with scarcely a break in an entire county, is uniformly level or gently sloping, first in one direction and then another. This exposure is generally sufficient for good drainage without danger from erosion.

The soil is generally lighter colored than that of even the "high prairies" of the East. It contains much less humus than eastern soils, although it is by no means deficient in organic material. Except in the vicinity of streams, where stretches of sandy lands are common, the soils of Western Kansas may be roughly described as a very fertile

clay loam, the very perfection of "wheat land." The soil and subsoil are rarely separated by a line of sharp definition; the rich brown granular surface soil may be followed downward, often for several feet, before the subsoil can be made out with certainty. These are lands that are sure to stand the scourings of poor farming for very long periods; at the same time, organic manures, particularly those rich in nitrogen, are likely to prove beneficial many seasons after the time of their application. The climate of this elevated region has many of the characteristics of mountain climates. Here spring-time comes two or three weeks later than in Eastern Kansas, and the fall is correspondingly earlier. Nevertheless, the growing season is, in all respects, ample for the requirements of most of the crops of temperate regions, including such semi-tropical plants as corn and sorghum. Rains come, in large part, in sudden spurts and cloud bursts, often accompanied by hail, which is very destructive to growing crops.

IRRIGATION.

Except in the case of limited tracts of land flanking large streams like the Arkansas, no general system of irrigation is possible in Western Kansas. Water for use for this purpose on an extended scale is wholly or in great part wanting. Such streams as the Smoky Hill, the Cimarron, the Beaver, the Solomon, and their larger affluents might furnish water for irrigation upon a small scale, but the quantity of water available for this purpose is sure to be small during the season when it is most needed. In the lower valleys, where water may be had by means of shallow wells, it would doubtless be possible to practice irrigation upon a considerable scale by means of powerful pumps of the Huffer pattern; but this is at present wholly a matter of speculation. The cost of such pumps and machinery, to say nothing of fuel, puts the system quite out of the reach of the average settler. Moreover, irrigation, even where water for this purpose is ample, is almost certain not to succeed in a region where rains are sufficient for a crop; where, in short, artificial irrigation may be suspended. Artificial watering on a large scale is always expensive. To build dams, ditches, and the apparatus of irrigation, and to keep these in repair, involve a very large investment of capital. It is unlikely that the farmer will make this large outlay for occasional use only; but even if the plant has been constructed, it is almost certain not to be in repair for immediate use at the critical time when the rains cease to fall.

METHODS OF CULTURE.

A principal object of my enquiry was to learn of those agricultural matters and things which have proved successful in the experience of Western cultivators. Particular attention was therefore given to the plants which had made crops, and the methods of cultivation which had most contributed to them.

Nearly all residents of Western Kansas, and particularly those who have only a theoretical acquaintance with agricultural affairs, lay great stress on the importance of breaking up the soil at great depths. Deep tillage is really a very expensive process, and quite beyond the forces at the command of settlers in general. Two farmers, among the most successful in Trego County, assured me that deep plowing was not beneficial, one of them going so far as to assert that it was positively injurious to succeeding crops. At a Farmers' Institute held at Hays City, at which the question of deep plowing was fully discussed by a large number of practical farmers, opinions were evenly divided on the subject. On the other hand, one of the money-making farmers of Ford County always

plows deep, without going to the extreme of trench plowing or subsoiling, however.

My own opinion is that deep tillage in Western Kansas is a question of soils and situations. The soil and subsoil of one farm are favorable to deep culture, while best results are obtained upon another with comparatively shallow tillage. In the West, as in the East, the best soil is found, as a rule, at the surface convenient for the needs of young plants. To bury this rich soil to a great depth under the crude, inert subsoil which trench plowing brings to the surface, is generally a mistake. Where the subsoil is indurated and impervious to moisture, subsoiling might be resorted to advantageously; but deep or trench plowing, if practiced at all, ought always to be a gradual process; the deepening of the tilth should go on with the years, an inch at a time with each plowing. The argument that by deep plowing we add to the capacity of the land for retaining moisture seems to me to be greatly overdone. The soil and subsoil of Western Kansas, so far as I have observed, are remarkably porous and granular, and deep tillage is not likely to add to a property thus natural to and inherent in the soil. This rule will, I am confident, prove a safe one in Western Kansas: Moderate or deep cultivation, as experience dictates, with thin seeding of all crops, particularly corn, sorghum, etc., with subsequent numerous and prolonged shallow cultivations.—*Prof. Shelton.*

LIGHT IN THE SCHOOL-ROOM.

ON page 241 of the Architects and Builders' Edition of the *Scientific American* is an article on "School Architecture," by Prof. Search, Superintendent of Public Schools at Sidney, O., which contains the following paragraph: "When the lighting of a school-room must be from two sides, these sides should be left and rear, but never left and right. In the reports on this subject of the schools of an adjoining State, 97 per cent of the school-rooms receive light from both right and left—and many from the rear also, and nearly 10 per cent from the front. It is apparent that the many angles of light thus given must cause the most deleterious effect on the eyes of the pupils. I prefer a unilateral light from windows very large or so arranged in groups as to give admittance to a few broad bands of light rather than to many streams of light from numerous small openings."

On the very next page is given a model plan for a four-room village school-house, by Mr. F. Langdon of Winona, Minn., who claims that his design is not a mere experiment, but is the outgrowth of forty years of careful study, aided by the suggestions of some of the best educators in the land. In the description of this building, Mr. Langdon says: "The injurious system of admitting light from only one side of the room is completely obviated by this plan. The light is here admitted just as it should be—from rows of windows arranged on either side and from behind."

A comparison of these statements will show that they are in many respects contradictory, though they are published in good faith by a journal of practical science and written by so-called authorities. They are fair samples of the confused notions of a majority of architects in regard to the necessary arrangement of school buildings, laboratories, and slojd shops.

What are the facts in regard to the best source of light in a school-room? The writer of this believes that there is such unanimity of opinion among the teachers of art or draughting, who naturally, more than those of other branches, have to watch the influence of the source of light upon the pupil and his work, that there should be but little chance for random statements like those given above, and little need for further costly experiments. Architect Langdon is nearly all wrong, and Pro-

fessor Search is far from being all right. The light should come from an amply large group of windows to the left of the pupils, well forward, and reaching from the ceiling to within a short distance of the floor. A nearly equal quantity of light should be added from above through the ceiling. The pupils should face east or north so as to place the side light to the north or northwest. All glass should have a corrugated surface so as to diffuse the light thoroughly, or should contain a milky white coloring matter. Inside or outside shutters would, of course, be unnecessary, since with an arrangement of this kind no direct sunlight could strike the windows, except the skylights, and these should be protected by outside hoods. Semi-transparent curtains of gray, light blue, or light green fabrics might protect the eye from too strong a side light. The interior decoration, which has also a great deal to do with the question of light, should be in some very light and non-reflecting tint of blue or green or gray, while the black-boards should be dark gray or dark green. Small quantities of high colors might be used in the designs of the decoration without fear of bad results, but metal lusters should be avoided even here.

It must be admitted that such a school building, if built on a large scale, would give a rather odd piece of architecture; it would lack the geometrical repetition of the narrow slit window of the present dwelling house. Yet, the eye would as soon become accustomed to the new school-house as it became to the railroad depot, the glass-roofed studio of the artist, the windowless library, the octagonal cyclorama, the locomotive shed, and the water tower. Gradually it would discover beauty where at first it saw but oddity,—it would see the beauty of the fitness of things. It is safe to predict that the school-house of the future will have an architectural character of its own.—*Prof. Walters.*

MUTTON SHEEP.

There has been a wonderful awakening during the past twelve months in the matter of sheep-breeding; while this has extended to almost every branch of the trade, the heavier carcassed breeds have, naturally enough under the existing circumstances, been the chief beneficiaries. Prices received for the best grades of fat muttons in this market have been so uniformly satisfactory—as compared with the values of beef on the hoof—that farmers and feeders generally have begun to turn their attention at last to this of late much-neglected branch of stock-rearing. Word comes from Mattoon, Ill., that Coles County feeders have within the last week received 5,000 head of young sheep from Southwestern Kansas and Montana ranges, to winter on the cheap corn so abundant in that section, and from various other quarters the information is conveyed that sheep-feeding is to constitute a very important industry during the winter months. Owing to the comparative scarcity of good grades and crosses of the various mutton breeds, feeders are, of course, compelled to purchase "stores" from the far West, but how much greater would be the returns from the grain to be consumed if adequate supplies from better-bred animals were available. The *Gazette* believes that in the judicious breeding of pedigreed sheep of the distinctively mutton sorts there is room for a very wide extension of interest with profit to all parties concerned.—*Breeders' Gazette.*

TRAINING GRAPES.

It is impossible to obtain fine, large, perfect bunches, except from strong canes, hence it is necessary to renew each year from the base of the vine, and this is about one of the hardest things a vineyardist has to accomplish. I believe that the vineyard of the future will be managed as follows: Instead of planting vines 12x12 feet apart, they will be planted 6x12 feet. One-half the vines will be allowed to bear fruit, and the other half only be allowed to raise young canes for next year's bearing wood, alternating each year. I believe by some such system finer fruit could be obtained than by the usual process now pursued.—*J. S. Kidder, before the Missouri State Horticultural Society.*

KANSAS THRIFT.

Gas has been struck in Cherryvale at a depth of 600 feet. It is said to be one of the strongest wells in the State.

Fifty miles southwest of Liberal, Seward County, Kansas, are inexhaustible mines of the finest coal. It is equal in every respect to the Canon City coal, and is more easily and cheaply mined. The Rock Island will pass directly through these coal regions on its way to New Mexico and El Paso.

A Lyon County farmer carried off the corn prize at the Philadelphia Centennial, a Cowley County mill secured the prize on flour at the great New Orleans Fair, and now an Olathe farmer catches the five-hundred-dollar prize at the St. Joe Exposition. Kansas is ready to compete for prizes in any other contest.—*Exchange.*

Plans have been drawn by F. L. Dana, Secretary of the Interstate Deep Harbor Committee, for the proposed magnificent new Chamber of Commerce building to be erected in Topeka. The plans show the building on a corner, eight stories high. The capital stock is to be \$1,000,000, divided into 1,000 shares of \$100 each. It is proposed that the building be erected by leading capitalists of Topeka, on the building association plan.—*Topeka Mail.*

Secretary Mohler of the Agricultural Department has received from his correspondents in every county in the State, a conservative estimate of the yield of wheat, and he finds the total product of the State for this year to be 36,219,851 bushels, of which 35,030,048 bushels is winter wheat and 1,189,803 bushels is spring wheat. This makes the year 1889 second only to the year 1884, when the total product was 48,000,000 bushels; and it is more than double last year's yield.

The *Imprint* exposition of Finney County farm crops is coming to the front nicely; almost every day adds one or more samples to it. The show of wheat, oats, rye, and barley does not loom up so well as we desire that it should, and we hope that the farmers will not longer neglect this department. The show of corn is excellent, and it will not be long before we will have every farmer in the county represented in this department; as it is now, it fairly astonishes the oldest citizens; they can hardly believe that it was grown in this county.—*Garden City Imprint.*

PROFITS OF AGGREGATION.

The collapse of the great cotton-seed oil trust illustrates what we have said about trusts containing within themselves elements of self-destruction. Their days are numbered. Sound legislation will finish the work. Trusts may come and go, but large combinations of capital will remain. We have reached a period in the development of our country specially marked by the aggregation of capital. It is taking place on every hand, and in every line of business. Large manufactories are taking the place of small shops. The big store has swallowed up half a dozen little ones. The milling business illustrates the change that is going on. The small mills are going. They cannot compete with the large mills. Why? Simply because the large mill can convert wheat into flour and place it in the hands of the consumer at a much less cost than the small mill. A single one of the great Minneapolis mills has a capacity of seven thousand five hundred barrels of flour per day. It is said that some of the big mills are making and selling flour at a profit of five cents per barrel as a regular business. Now, it is plain that the consumers are benefited by having wheat converted into flour as cheaply as possible. There is no danger in a combination of capital, so long as it is engaged in a strictly legitimate business. So long as it does that, it is a great public benefit. It is when it seizes control of the market, and fixes the price to both the producer and the consumer, that it is against the public welfare. This is what legislation must prevent, and when it has done that, it has done all that is necessary.—*Farm and Fireside.*

KINDRED INSTITUTIONS.

In the *Colorado Farmer* of November 28th, is found a brief obituary of Prof. James Cassidy of the Colorado Agricultural College, who died after a brief illness, November 21st. Prof. Cassidy was forty-one years of age, a native of England, and had made his way to position in the Horticultural world step by step in the practical side of the study. Trained as a florist in the Royal Gardens, Regent's Park, London, he came to this country and worked four years for Peter Henderson and ten years at the Michigan Agricultural College in that capacity. His place as teacher of horticulture and related sciences in the Agricultural College at Fort Collins, Colorado, had been held for seven years,—long enough to prove his title good.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Hood spent Wednesday afternoon and evening in Topeka.

K. C. Davis has returned to College after an absence of three weeks.

Miss Tempie McKee, First-year, is enjoying a visit from her sister, Mrs. Pollock of Marysville.

Prof. Kellerman left Tuesday afternoon for the meeting of the State Horticultural Society at Paola.

The Domestic Science Club met with Mrs. Willard this week, a storm having prevented the November meeting.

Among callers this week is Mr. Maynard of Nebraska, who spent some hours in looking through the College.

Foreman Gundaker has at odd moments walled and ceiled his engine-room with joined boards, and now has quite comfortable quarters.

Mrs. Winchip has a houseful of pleasure in the presence of her father and mother for the winter, and her aunt, Mrs. Otis, for a good visit.

The west boiler in the main building has been fitted with a new grate of the Vulcan pattern, which gives satisfaction in the brief trial.

Professor and Mrs. Morrison had the satisfaction of entertaining the family of Chaplain McCleary of Leavenworth on Thanksgiving Day.

Miss Anna Weber of Junction City, and her sister, Mrs. L. Green of Los Angeles, Cal., spent Thanksgiving Day with Mr. and Mrs. McCreary.

Applications for aid in Farmers' Institutes are frequent now, but there is room for more, especially from counties not yet visited by representatives of the College.

A larger crop than usual of young surveyors adorns the campus this year. If every inch has not been measured and leveled, it is not the fault of the sixty-five Third-years interested.

Prof. Popenoe expected to attend the meeting of the State Horticultural Society, at Paola, this week, but was prevented by the serious illness of his children, who are now, however, improving.

The first three days of December hereabouts give the lie to Prof. Blake's predictions by balmy, sunshiny weather, fit to show as samples of Kansas mild winters. May they prove an index of the whole season!

A sound of merriment at times and of music between times indicates the approach of the Alpha Beta exhibition, and the immediate occupation of members in preparation. The event is to be on the evening of Thursday, Dec. 19th.

Prof. Shelton's handsome new surrey, made to his order by a Topeka firm, escaped notice when it arrived some time ago. The Professor ordered it before he received notice of his appointment in Australia, and now offers it for sale.

The table of comparative meteorological data which will be found in this issue is interesting in that it gives comparisons by months for thirty years past. It is the work of Assistant Chemist Breese, and will be a monthly feature of the INDUSTRIALIST.

The fifth division of the Third-year Class, consisting of Misses Louise Reed, Lottie Short, Carrie Stingley, and Lillian St. John, and Messrs. J. O. Morse, M. G. Riddell, E. W. Reed, H. V. Rudy, and Ben Skinner, occupied the public hour yesterday with declamations.

Prof. and Mrs. Davenport of the Michigan Agricultural College left on Wednesday after a careful scrutiny of all Departments of the College. Their visit renewed old and made new friendships, all of which may help on the good work. All wish for Prof. Davenport a successful career in his own college, and return with interest the good

cheer of his own words in chapel Tuesday morning.

Prof. Failyer was called by telegram to Independence on Thursday to give expert testimony in a case against alleged violators of the prohibitory law. A sample of the compound sold was analyzed by the Professor several weeks ago, with what result his testimony will disclose.

THE WEATHER FOR NOVEMBER.

There are but two cooler Novembers covered by our record—those of 1872 and 1880. The mean temperature for the month was 35.17°, which is 5.19° below the average. The highest temperature for the month was 66° on the 10th; the lowest, 11°, on the 28th and 29th,—a range of 55°. The coldest day was the 28th,—Thanksgiving,—the mean for the day being 18.25°. The warmest day was the 20th, the mean being 45.5°. The mean temperature of the observations at 7 A. M. was 27.93°; at 2 P. M., 48.33°; at 9 P. M., 32.2°. There were three cold waves—one at 3 P. M. on the 11th; one at 3:30 P. M. on the 13th; and one in the early morning of the 28th.

Moisture was precipitated on four days. The total for the month was 2.23 inches, which is .76 inches above the average. The first snowstorm of the season began on the evening of the 25th, nearly an inch falling during the storm which lasted until the next evening, but the snow melted quickly after reaching the ground.

The mean barometer for the month was 29.027 inches: at 7 A. M., 29.042 inches; at 2 P. M., 28.998 inches; at 9 P. M., 29.04 inches: maximum 29.51 inches on the 5th; minimum 28.51 inches on the 20th; monthly range, one inch.

There were six cloudless days and four entirely cloudy days. Eleven days were more than one-third cloudy.

The wind was north thirty-two times, northwest eighteen times, east twelve times, southwest eleven times, west ten times, northeast four times, and southeast three times. The run of wind for twenty-eight days was 5,089 miles. This gives a mean daily velocity of 181.75 miles, and a mean hourly velocity of 7.57 miles. The highest daily velocity was 344 miles on the 21st. The lowest, 47 miles on the 17th. The highest hourly velocity was 26 miles, on the 13th, between 5 and 6 P. M.

The table below gives a comparison with the preceding Novembers:—

November.	Number of Rains.	Rain in Inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1859	2	1.20	45.95	84	10			
1860	4	1.58	37.53	65	10			
1861	2	.70	41.35	73	16			
1862	3	1.70	44.08	72	23			
1863	4	2.23	38.15	68	1			
1864	4	1.01	36.56	58	10			
1865								
1866	3	1.37	46.37	81	20			
1867	2	.49	45.10	90	7			
1868	5	2.17	35.10	71	16			
1869	5	1.19	37.26	61	20	28.77	29.20	28.30
1870	2	.13	45.61	74	17			
1871	5	1.06	36.98	72	4			
1872	0	.00	34.08	70	2			
1873	2	.82	42.13	79	12	28.70	29.06	28.17
1874	5	2.12	39.00	78	3	28.80	29.28	28.00
1875	3	.34	39.46	63	2	28.81	29.45	28.32
1876	2	1.75	37.29	70	0	28.85	29.50	28.36
1877	6	1.00	38.70	65	5	28.80	29.31	28.45
1878	2	1.00	43.52	74	15	28.77	29.05	28.25
1879	6	7.83	49.50	70	15	28.64	29.25	28.18
1880	4	1.07	31.05	67	7	28.73	29.21	28.25
1881	3	1.85	39.35	68	7	28.71	29.11	28.10
1882	3	.95	40.53	79	15	28.79	29.09	28.34
1883	1	.30	43.45	69	11	28.72	29.23	28.06
1884	2	1.07	42.36	70	12	28.59	28.60	28.15
1885	1	.19	42.94	84	22	29.40	29.80	28.43
1886	2	1.24	40.59	79	12	28.90	29.35	28.34
1887	1	.29	41.21	85	9	29.10	29.60	28.07
1888	2	.91	37.33	78	14	29.05	29.47	28.61
1889	4	2.23	35.17	66	11	29.03	29.52	28.51
Mean	3	1.47	40.37	73	10.3	28.84	29.30	28.36

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, P. C. Milner; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Coburn; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secret; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

SOCIETY HALL, November 20th.

The Alpha Betas were called to order by President Secret. Misses Senn and Hopkins favored the audience with a beautiful song, entitled "Juanita." Miss Parker, organist. Miss Corlett led in devotion. Roll-call. Fairy Strong gave a touching declamation about how Pocahontas saved the life of Smith. J. E. Taylor then read an essay about Niagara Falls, which was very interesting. Mr. Taylor writes a good description, and we hope to hear from him again in the near future. Debate was passed that old members present might address the Society. Emma Allen spoke first, complimenting us highly for all our exercises, except the debate. She felt sorry to see that we Alpha Betas still held to the bad habit of passing debate. Mr. Jones then gave an account of what he has been doing since graduating from this College. Before closing his remarks, he paid a high tribute to our Society by comparing it with other like institutions of the State. Miss Bacheller said that she did not come to talk, but to listen; and that she had wished very much to hear the debate. Miss Lockhart Harman presented the *Gleaner*; motto, "When you are sure you are right, go ahead." Recess. The congregation united in singing "Nearer, My God, to Thee." Under the head of extemporaneous speaking, many excellent thoughts were brought out. Miss Allen told us what a noble man Charles Darwin was. By the attention given, it seemed that the majority of the audience were in sympathy with what she said. Miss Allen has a kind word to say for any truth-seeker. Mr. Jones spoke about what the proper length of a public lecture should be. John Davis said that he did not believe in foreign missions as they are carried on today. Mr. Hutto brought out a bran new idea for the audience to think upon. He said that, as human genius has produced the graphophone, which is capable of reproducing thoughts from material things, why should not man be capable of inventing a machine that would take thoughts from a person's brain as fast as they are produced, and thus make all secrets public. What an incentive such a machine would be for mankind to have pure thoughts! Many other members' partook in the discussions. Miscellaneous business. Assignment of duties. Critic reported, after which the minutes were read and approved. The music committee, Minnie Netz, then reported, and Christine Corlett rendered a beautiful selection of instrumental music. Adjournment. G. L. C.

HAMILTON HALL, November 30th.

The first business of the Society was to receive a report from the Board of Directors in regard to C. H. Houser. As a favorable report was rendered, the gentleman was initiated. The Critic being absent, W. J. Yeoman was appointed to fill the vacancy. The programme of the evening was next taken up. A. C. Newburger read a dialogue between two young ladies while they were endeavoring to study. Messrs. Reid, Strickler, and Peterson were selected to judge the debate. F. M. Linscott opened up the discussion on the question, "Should Military Schools be encouraged in the United States?" showing how absurd it would be to say that such an art as war should not be encouraged and taught. L. C. Criner was the first to speak on the negative of this question. Mr. Adams continued the debate on the affirmative, bringing forth some facts to show how the modern military school is carried on, and of what great need there is of such institutions. M. L. Graves seemed to think that rather than establish these military schools, such institutions as the Kansas State Agricultural College should be established. The discussions were carried farther, and then the judges rendered their decision unanimously in favor of the negative. Frank Beach rendered a declamation, entitled "I'll Reach the Top." R. W. Neuman read an essay about "A New Nation," speaking of the new Republic of Brazil. The essay was good. I. B. Parker, as music committee, arranged for other members to furnish a piece of instrumental music. The Society was next entertained by the Hamilton Recorder, presented by A. F. Cranston. Some of the principal articles that attracted attention were, "One Abuse of the Press," "Social Notes," "An American Indian," and "The Kansas State Agricultural College in 1925." Under propositions for membership, the names of S. C. Jones and O. H. Hermle were proposed. Report of Critic. Assignment of Duties. Adjournment. C. E. C.

SOCIETY HALL, November 30th.

Society Hall was well filled with Websters when President Martin called the house to order. C. A. Campbell led in devotion, after which Messrs. Campbell and P. C. Milner were inaugurated. F. S. Little was initiated. The question for debate was, "That a State Uniformity of Text Books in our Public Schools would be beneficial." E. W. Reed and Wm. Town argued the affirmative. They thought it would be a great benefit to the teachers, for they could then become better acquainted with the books used; that it would be of value to pupils, for a system of uniform county grades might then be possible; that it would save money for those moving from district to district, or county to county; and, lastly, the books could be obtained so much cheaper. The negative, argued by R. C. Hunter and R. D. Brown, thought that the teacher would then have a much more limited knowledge of the various subjects on account of not coming in contact with the various texts; moreover, there would be no incentive to a further study than of those in use. They also believed the price of books would not be decreased, as proved by several localities where there was a uniformity, for the books were very poorly made. The decision was given in favor of the affirmative. A. K. Barnes read an interesting essay about Alaska. Mr. Kistler gave a declamation, entitled, "Sorrow for the Dead." Music, G. K. Helder. Discussion, F. E. Baxter, "Cadet Life at West Point." As there was considerable business to come before the Society, the remainder of the programme was passed. K. C. Davis gave notice that he would offer an amendment to the Constitution, limiting our membership to ninety persons. H. D.

SOCIETY HALL, November 20th.

The Hall was well filled when President Waugh called the Ionian Society to order. The Society joined in singing and devotion. A select reading by Millie Frost was followed by a declamation by Anna McConnell. Doris Kinney then read an essay. The Society listened to a duet by Alice Vail and Myrtle Harrington. The question for debate was argued on the affirmative by Maude Whitney and Dora Skinner, and on the negative by Susie Hall and Laura Barr. The Judges, Misses Short, Selby, and Pearce decided two to one in favor of the negative. Parliamentary practice for ten minutes. The name of Mary Rhodes was proposed for membership. Report of Critic. Reading of minutes. S. E. H.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

EDUCATIONAL MEETINGS.

Kansas State Grange, Topeka, December 17th.
State Teachers' Association, Topeka, December 25-27th.
Kansas Butter and Cheese Manufacturers, Junction City, January 8th.
Southern Kansas Farmers' Convention, Wichita, December 17th, 18th, and 19th.

Senator J. J. Ingalls is expected to give an address at the State Teachers' Association.

Senator Plumb has given \$500 to the Anderson Memorial Library of the College of Emporia.

Baker University has a class in calisthenics composed of young ladies and taught by Mrs. Preyer, the wife of the Professor of Music.

Supt. W. W. Colby of Phillips County has commenced the publication of an educational periodical, the Phillips County *School Journal*.

United States Commissioner W. T. Harris is expected to be present at the State Teachers' Association, where he will deliver an address, Dec. 27th.

The Washburn *Reporter* complains that one of the students spells it "Collage." We have seen more than one parallel to that, even among Pestalozzians.

Wellington City employs twenty-two teachers; Belle Plaine, fifteen; Caldwell, eight. The total number in the county of Sumner is two hundred and twenty-nine.

The meeting at Wichita of the Southwest Kansas Teachers was a pronounced success in every particular. Sumner County had sent the largest delegation, and received the silk banner.

Buzzard Hollow, Pottawatomie County, has organized a literary society. At their first meeting the question debated was, "Resolved, That going to the 'literary' is of more benefit than going to church."

Every teacher should add two or more volumes each year to his professional library and be a subscriber to several educational journals. The need of such reading is important, and he but slights his profession who cannot realize the requirement of keeping pace with its literature.—*Russell County School Signal*.

There were about three hundred teachers present at the Northwest Kansas Teachers' Association held last week at Concordia. The programme was carried out to the letter and much interest was shown in the debates of the various subjects. The evening lectures were given by Profs. J. H. Canfield of the State University, and O. E. Olin of the State Agricultural College, and Hon. Geo. R. Peck of Topeka.

The work of inter-collegiate visitation of the Y. M. C. A. in this State will probably begin next Sunday, by a visit from the Ottawa University Association to Baker. A meeting will be held on Saturday for the Association workers, at which the best plans for the work will be discussed. The visitors will conduct the regular gospel meeting in the chapel, Sunday afternoon at 3 o'clock. After this visit, our boys will go to Lawrence and visit the State University and Haskell Institute, and conduct similar meetings.—*Baker University Index*.

THE PROGRESS OF INVENTION.

The earliest and simplest forms of bronze ax with which we are acquainted are profoundly interesting, as casting a flood of light upon the general process of human evolution all the world over. Every new human invention is always at first directly modeled upon other similar products which have preceded it. There is no really new thing under the sun. For example, the earliest English railway carriages were built on the model of the old stage-coach, only that three stage-coaches, as it were, were telescoped together, side by side—the very first bore the significant motto, *Tria juncta in uno*—and it was this preconception of the English coach-builder that has hampered us ever since with our hateful "compartments," instead of the commodious and comfortable open American saloon carriages.

So, too, the earliest fire-arms were modeled on the stock of the old cross-bow, and the earliest earthenware pots and pans were shaped like the still more primitive gourds and calabashes. It need not surprise us therefore, to find that the earliest metal axes of which we have any knowledge were directly molded on the original shape of the stone tomahawk. Such a copper hatchet, cast in a mold formed by a polished neolithic stone

celt, was found in an early Etruscan tomb, and is still preserved in the museum at Berlin. See how natural this process would be; for, in the first place, the primitive workman, knowing already only one form of ax,—the stone tomahawk,—would naturally reproduce it in the new material, without thinking what improvements in shape and design the malleability and fusibility of the metal would render possible or easy. But, more than that, the idea of coating the polished stone ax with plastic clay, and thereby making a mold for the molten metal, would be so very simple that even the neolithic savage, accustomed to the manufacture of coarse pottery upon natural shapes, could hardly fail to think of it. As a matter of fact, he did think of it; for cells of bronze or copper, cast in moulds made from stone hatchets, have been found in Cyprus by General di Cesnola, on the site of Troy by Dr. Schliemann, and in many other assorted localities by less distinguished but equally trustworthy archaeologists.

To the neolithic hunter, herdsman, and villager, this progress from the stone to the metal ax probably seemed at first a mere substitution of an easier for a more difficult material. He little knew whither his discovery tended. It was pure human laziness that urged the change. How nice to save yourself all that long trouble of chipping and polishing, with ceaseless toil, in favor of a stone which you could melt at one go and pour while hot into a ready-made mould! It must have looked, by comparison, like weapon-making by magic; for properly to cut and polish a stone ax is the work of weeks and weeks of elbow-grease. Yet here, in a moment, a better hatchet could be turned out all finished! But the implied effects lay deeper far than the neolithic hunter could ever have imagined. The bronze ax was the beginning of civilization; it brought the steam-engine, the telephone, woman's rights, and the country councillor directly in its train. With the eye of faith, had he only possessed that useful optical organ, the Stone Age artisan might doubtless have beheld Pears's soap and the deceased wife's sister looming dimly in the remote future. Till that moment, human life had been almost stationary: thenceforth it proceeded by leaps and bounds, like a kangaroo society, on its upward path towards triumphant democracy and the penny post. The nineteenth century and all its wiles hung by a thread upon the success of his melting-pot.—*Cornhill Magazine*.

BUSINESS ON THE FARM.

What object have you in being a farmer? Do you merely want to exist, or do you want to accumulate a surplus, to get ahead, to be a successful business man? Are you just drifting along without any plan or aim in life or any plan or thought for the future? This is a matter of more importance than would at first seem. A man seldom hits a higher mark than his aim. If his aim be low he will stay low, be low. If his aim be high he has at least a chance to rise in life, to succeed, to be somebody. Farming is a business, and taking one thing with another, year after year, a good and safe business, but it must be prosecuted in a business way to make it successful.—*Sioux City Farmer and Stockman*.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book-stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$10 to \$200 a year.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentage and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

PLAINS FARMING. II.

CROPS GROWN.

PLANTS like wheat, rye, and oats, which get the benefit of all spring rains without risk from the July and August dry weather, are much more successfully grown than corn, whose period of growth extends through the entire growing season. The hard "Russian" or "Turkey" wheats are much safer than the soft varieties. They endure both winter freezing and summer drouths better than the soft wheats. Very general satisfaction was expressed with the quick-maturing flint or Yankee varieties of corn. There is no doubt that the cultivation of these quick-ripening varieties is rapidly extending all over Western Kansas. Sorghum, in all its varieties, is, all over Western Kansas, the favorite drouth-resisting crop. I am satisfied that this wonderful plant has never had the opportunity given it of doing half that it is capable of doing for western farmers. Its stalks and blades make the best provender, and give a crop two or three times as great as that obtained from timothy; to say nothing of sugar it furnishes, an easily obtained and valuable sweetening, and the seeds of many of its varieties like the Kaffir corn, milo maize, etc., furnish a grain equal in yield to Indian corn, and superior to it for many uses to which corn is put. While reckoned justly to be pre-eminently the crop for dry regions, the experience of the past year has demonstrated that it cannot survive a July and August drouth. A mid-summer drouth of four to six weeks, even when attended by hot winds, will not ordinarily overcome the extraordinary vitality of the sorghum plant, if it is followed by sufficient rains in August and early September; but where dry weather is succeeded by the failure of the "latter rains," the sorghum and every other late maturing crop must perish.

Rice corn, one of the numerous varieties of sorghum, has been grown in Western Kansas for twelve or more years, but it is not a favorite crop. It yields lightly in grain, it furnishes but little forage, and that of an inferior quality, and it is almost constantly infested by insect vermin. Kaffir corn and milo maize, on the other hand, although a recent introduction, have given great satisfaction in every case of their cultivation reported to me. Besides having extraordinary ability to resist drouth, they yield heavily of superior grain. Even upon the poorest lands, the stalks and blades give a large amount of excellent forage, and they are almost entirely exempt from insect attacks. These varieties of the sorghum plant have furnished support for millions of people during countless ages in the arid and semi-arid regions of Asia and Africa, and they may be made in like manner serviceable to the American plains farmer. Broom corn is likely also to prove very often a profitable crop in western, as it has long been in the central, counties of the State. Doubtless there are many other crops well suited to the peculiar soil and climate of Western Kansas, which will be brought to light, as valuable crops usually are, by the experience of the farmers of that region; but I have already indicated a number sufficient to satisfy the varying needs of soils on the one hand, and of the farmers cultivating them on the other. The present promising condition of the State Forestry Stations at Ogalah and Dodge City, and the Government Grass Station at Garden City, make it well nigh certain that these stations will in their specialties contribute greatly to the future growth and development of Western Kansas.

The truth is, the number of plants cultivated in a given locality, however productive, is extremely limited. The staple crops of the richest agricul-

tural sections in the Union may in most cases be numbered on the fingers of one hand.

SUGGESTIONS AND RECOMMENDATIONS.

We have already seen that Western Kansas differs from the eastern portion of the State in well nigh all essential agricultural conditions. In elevation, character of soil, rain-fall, and natural products, there is between two sides, or rather ends, of the State, not merely a difference, but a radical and fundamental divergence. And these differences will be in the future essentially what they have been in the past. Of course, seasons will vary here as elsewhere. Occasionally, as in 1860, 1874, 1881, and 1887, the plains climate will be carried east to the Missouri River or beyond, and again, not unfrequently, the humidity of the eastern section will prevade the whole State, and the region westward even to the mountains; but this fact will remain: that what the climate of any section in the State has been in the past twenty-five years that it will be during the next quarter century. I speak with a fair knowledge of the literature of this subject and a considerable acquaintance with the agricultural history of our State, and I have no hesitation in saying that there is no warrant in history or local experience for the well nigh universal belief that "deep plowing," "forestry," "turning under the buffalo grass," building "reservoirs," will each or all ever change the agricultural conditions which the settler of any section finds when he begins these and other improvements. The common notion that a change of climate will come as a result of growing more trees and cultivated plants seems to me wholly due to false logic; vegetation is due to climate, and not climate to vegetation.

The very first thing that the farmer of Western Kansas must learn is to take that region, not for what he hopes or dreams it will be, but for what it is. We may not, like the evolutionist, ask and obtain cycles of time in which to demonstrate a theory. He has at his command at most a few years; and even if it were true that the cultivation of the soil may materially effect climate, it is most unlikely that this change would be noticeable in the course of one brief life-time. The settler must then give practical recognition to the fact that the climate as well as the soil of Western Kansas, whether better or worse than that of regions further east, radically differs from that of the East. As a result, whatever efforts men may make to the contrary, there will ultimately certainly obtain a different system of agriculture in Western Kansas from that practiced in the East. What this system will be, must, in so far as details are concerned, be largely a matter of speculation; the general plan, however, seems to have been plainly indicated by the experience of the past few years.

Stock-raising must be the basis of plains farming. Even if grain crops for immediate marketing could be safely counted on, it is doubtful whether, considering the remoteness of this section from ultimate markets, and the high price of freights, whether the business can be made a paying one. Moreover, the farmers who have made stock-farming their chief reliance have generally been successful. The men who have been compelled to flee from Western Kansas have almost to a man been exclusive grain-raisers. The stockmen have stayed; and, as a rule, they have flourished.

The eastern idea that a farm of 160 acres is sufficient for the maintenance of a family must, upon the plains, outside of irrigable regions, be forever abandoned. Where outside pasturage is not accessible, the plains farmer ought not to limit his operations to a smaller farm than 640 acres, and in most cases a thousand acres will not be too

large. Upon such large farms, the native grasses, supplemented with rye and wheat pasturage, and sorghum and corn fodder and millet hay, will keep a herd of cattle or flock of sheep of sufficient size to make a profit from the operations of the farm well nigh certain. Upon these farms, only the best lands should be cultivated. The homestead should be located convenient to this cultivated portion of the farm,—quite likely in the valley of some water course where irrigation upon a small scale might be possible. Here should be a considerable acreage of such hardy crops as sorghum, Kaffir corn, and milo maize sufficient to supply fodder for the neat cattle, with grain for the horses, swine, and poultry, and for cattle as needed. Here, too, a considerable acreage ought yearly to be sown with rye or wheat, or preferably the two mixed, which would ensure valuable pasturage many weeks of each year, and often in addition a considerable yield of valuable grain.

Larger experiences will suggest to the practical man many important additions to, and modifications of, this scheme; but that the general plan is correct and practicable, and indeed the only scheme of farming which so far has proved successful in plains farming, I have the assurance of farmers who have not been compelled to abandon their claims by reason of crop failures.

This plan for the settlement and permanent occupation of Western Kansas will not encourage booms and real estate speculations. Nor is it likely to bring about the rapid settlement of the country, but it will do better for the people than all of these combined if, as I am confident will be the case, it enables actual farmers to get a real foothold in the soil.—*Prof. Shelton.*

KOHL-RABI AS A STOCK FOOD.

We cull from an article of Prof. Shelton's in the *Breeders' Gazette* the following facts and conclusions as to raising kohlrabi upon the College farm:—

"Before going on with our experience with kohlrabi at the College farm, I ought perhaps to say that this plant is a bulb-stalked cabbage, a native of Germany, where it is much cultivated both for forage and as an article of human diet. The stem of the kohlrabi above ground swells into the form and proportions of a handsome, symmetrical tuber. This tuber in composition closely resembles the ruta-baga, having, however, a much larger proportion of the plastic or nitrogenous element than the Swedes possess. The interior, or flesh, of the kohlrabi closely resembles in appearance, texture, and flavor the inside of the stalk of the cabbage.

"In May, 1887, I planted about one-half (54-100) acre to kohlrabi, using for this purpose one pound of seed, which, by the way, was fully three times as much as was really required to properly stock the piece. The seed was drilled in rows three feet apart,—three and a half would have been better.—one of the common hand drills, a wasteful, inefficient machine, having been used for the purpose. The seed 'came up' promptly, and as soon as the rough leaves had reached the size, say of a dessert spoon, the plants were thinned out, leaving one plant to each twelve or fourteen inches of row space. After that two or three cultivations and perhaps a light hoeing put the crop in shape to be 'laid by.' We all remember the season of 1887 as one of drouth and disaster all over the West. Every grain crop upon the College farm, except oats, which yielded a bare half crop, was that year a complete failure. From about the middle of June until the first week in August less than one and a half inches of rain fell, and this came in the shape of insignificant showers which barely sufficed to lay the dust. The behavior of our kohlrabi during this drouth period fully confirms the dictum of the cyclopedia that 'the kohlrabi is the bulb of dry summers.' Our cabbage bulbs did not make any extraordinary growth during this time of drouth, and I may add, terrific heat; but they lived without much apparent discomfort, making bulbs the size of the clenched fist, while corn in the same field was burned up before it was half grown. As soon as the rains of August set in, our kohlrabi made an extraordinary growth. Bulbs of six and eight pounds became common, and late in October we harvested from this fraction of an acre (54-100) 205 bushels of handsome bulbs, to say

nothing of several wagon-loads of tops which, without weighing, were hauled to the cattle and greedily consumed by them.

"Our crop of kohlrabi was wintered in a shallow pit; the bulbs were first covered with a coating of eight inches of dry straw, and later in the season this was covered with about the same thickness of earth. In this condition the kohlrabi remained until the following spring,—some were kept until late in May,—when they were taken out in perfect condition and fed, principally to milch cows and calves, which ate them with evident relish.

"The present season kohlrabi have been cultivated on two detached pieces of ground aggregating something like one acre. The smaller of these (36-100 acres) has just been harvested. It gives us 273 bushels (60 lbs.) of bulbs, a yield which rates at 758 bushels, or 22 79-100 tons per acre. The bulbs ran from six to twelve pounds each, although a single specimen three weeks before harvesting weighed an even twenty pounds.

"In conclusion, let me say to intending cultivators of kohlrabi: Get for the use of this crop clean, rich ground, plant at ordinary corn-planting time, and keep clean. While I cannot guarantee a crop of bulbs in every case, I am confident that with no other Western farm crop are the chances for success greater than with kohlrabi. Of the two kinds, purple and green, sold in the market for stock purposes, the purple is greatly the better, giving larger and handsomer bulbs, apparently of better quality than the 'white,' the name under which the seed of the green variety is commonly sold. In seeding, avoid the hand drill; it always wastes two-thirds of the seed that it sows, and does its work poorly. I plant by hand preferably and thereby save seed sufficient to pay the laborer, and get a better stand than can be had with the drill. Two to four seeds thrust into the moist earth by the thumb and forefinger, at intervals of ten to twelve inches, is almost certain to give an even stand in the best possible shape for the subsequent operations of thinning and hoeing.

"I make the cost of each bushel of kohlrabi a trifle more than three and one-half (3.69) cents. The amount of labor used in growing this crop was doubtless excessive. Our patch was in a conspicuous place, and we kept it clean. Most farmers would consider the third hoeing and cultivating a work of supererogation; and of course the considerable task of weighing, involving, as it did, hauling a considerable distance to the scales, would be omitted in ordinary farm operations."

BEST MATERIAL FOR BANKING.

We keep out cold by preventing escape of heat. Of all non-conductors of heat, air that is kept motionless is best. The materials that contain a large amount of fixed air are classed as good non-conductors of heat—such as down, fur, feathers, wool, etc. These are called "warm" because they prevent escape of heat from a warm body; they might be called "cold" when they prevent passage of heat from external sources to a cold body within. A lump of ice wrapped in fur or a feather-pillow may be kept for days from melting. "Wrap up the baby to keep it warm; wrap up the ice to keep it cold." For making a building, the material that will keep the largest amount of air motionless will serve best. Straw and hay will be better than soil, because they hold more air in proportion to solid matter. Chaff and sawdust will be better still, for the same reason. Whatever the material used, the more porous it is, without permitting the motion of air as wind, the better the protection afforded from cold. If earth is used for banking, it should contain a large amount of vegetable matter. Swamp muck is good for this purpose, because it is so loose and spongy. I have seen compact sand frozen four feet deep where muck did not freeze ten inches, under the same circumstances.—*Dr. R. C. Kedzie, in New York Tribune.*

TERMS OF ADMISSION.

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KANSAS THRIFT.

The Lawrence canning works made a net profit of \$29,000 last year.—*Wichita Republic.*

The aggregate capacity of Kansas flouring mills per annum exceeds 70,000,000 bushels of wheat.

Natural gas was struck on the farm of County Treasurer Crawford, two miles north of Erie, last week, at a depth of 100 feet.

Four thousand Utah sheep are being fed at Downs. They will require 15,000 bushels of corn, 2,000 bushels of oats, and 300 tons of hay.

The business men of Kansas City, Mo., have subscribed \$100,000 to be used as a subsidy for a line of boats on the Missouri River. The packet line is a go, and the boats will be afloat on the Missouri River next season.

One hundred thousand dollars' worth of binders and threshers were sold to Mitchell County farmers this year, and it is estimated that the sale of other implements and wagons will swell the amount to \$300,000.—*Cawker Journal.*

Several of the stockmen in this locality have adopted the plan of shelling their corn before cribbing. They say that corn in this shape can be kept with less waste, occupies less room, and is more convenient for handling.—*Madison News.*

The Manhattan Lock Works are running. Just now the principal work is on a lot of padlocks, which cannot be made fast enough to supply the demand. A brass foundry connected with the establishment is only waiting for crucibles to be fully equipped.

On last Thursday morning a special of nineteen cars filled with sheep passed through Kirwin eastward bound, and for the past five days this special has been run, taking sheep eastward. We understand there are 12,000 all together, and they are taking 2,000 to a train load.—*Kirwin Independent.*

In the last ten years the capital invested in Kansas in manufacturing industries has increased 600 per cent, and the number of laborers employed has increased 400 per cent. In that time, fourteen breweries have been banished from the State. Can any Western State make a better showing?—*Topeka Capital.*

The Cherryvale vinegar factory, so its proprietor, Mr. G. G. Barber, informs us, has on hand about 1,500 gallons of vinegar and cider. This winter three tanks of 100 barrel capacity will probably be added to the works. We see no reason why a large factory may not grow out of Mr. Barber's excellent start.—*Cherryvale Republican.*

A convention of farmers and live-stock men has been called by the *Kansas Farmer*, to meet at Topeka, January 8th, for the purpose of considering the present distressed condition of the live-stock industry, and to suggest means and measures of relief. The State Board of Agriculture will be in session at the time, which fact is counted on to aid in securing an attendance.

A new oil strike has been made four miles from Pittsburg in the valley of Chartier's Creek. The well is doing 400 barrels per day. When oil was struck the column shot out of the casing tube to a distance of 100 feet. This is the second big strike recently, and the speculators are crazy. It is possible that the Cherry Grove excitement of '82 may be duplicated. Oil was down to 10 cents in those days.

It has just been published among the local flour men that during the year ending June 30th, 1889, the flouring mills of Topeka ground 1,325,000 bushels of grain, costing \$1,067,000, and turned out a product equal to 275,925 barrels. One hundred and nine men were constantly employed. The mills ran on an average 206 days of twelve hours each. The full capacity of the mills is 1,440 barrels daily. One hundred and twenty-four sets of rolls were used, and only fifteen pairs of burrs. The milling capital of the above city amounts to \$536,000, an increase over last year of \$38,000. Topeka is by far the largest milling center in Kansas. The next largest is Atchison, where the capital used amounts to \$374,000, producing 173,104 barrels, or over 100,000 barrels less than Topeka. The above is not generally known among local grocers, or, in fact, among those all through the West, who have no conception of the amount of flour manufactured close at home.—*St. Louis Grocer.*

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Prof. Olin's family are enjoying a visit from a cousin resident in Shawnee County.

Mr. and Mrs. Vale of Alton, Osborne County, visited their daughter at College this week.

Mrs. Winchip showed about the College on Thursday, her nephew, Mr. Otis of Vermont.

The Board of Regents will meet in regular session Tuesday next, December 17th, at 3:30 P. M.

The close of the term brings much work to teachers and students—more, in fact, than either would like to carry regularly.

According to an item in the *Manhattan Nationalist*, Prof. Nihart combines teaching with merchandizing at Council Grove.

Remember the Annual Exhibition of the Alpha Beta Society, next Thursday evening at eight o'clock, in the College Chapel.

Members of the Faculty will join as usual in the grand rally of teachers at the meeting of the State Association after Christmas.

Multitudes of students are consulting the President this week as to the studies for next term. Classes will all be organized for work on Tuesday, January 7th.

Capt. Shaubel of Fancy Creek sends for analysis a bottle of water from a new well, which he hopes, or at least suspects, contains minerals beneficial to health.

Another invoice of blouses and caps brings smiles to the faces of those Cadets who have heretofore had to drill in "citizens' clothes." There are now uniforms for all.

Mrs. Kellerman kindly took charge of the Professor's class in Botany during his attendance upon the annual meeting of the State Horticultural Society last week.

Thursday and Friday of next week, the last two days of this term, will be given up to the examinations in all departments. The term closes at noon, Friday, December 20th.

The Department of Music has a new machine for making music without noise, called a technicon, and designed to develop the muscles of the fingers and skill in their use.

The Mechanical Department is provided, as never before, with an excellent stock of lumber that may be perfectly seasoned before use. It is piled in best shape, and will always be ready.

The music for the Union Thanksgiving Services at the Presbyterian Church was furnished by a chorus choir of fifteen voices,—Mrs. F. L. Irish, organist,—under the direction of Prof. Brown.

Mrs. Winchip presented a paper, "Dress as an Indicator of Character," at the last meeting of the Domestic Science Club, held at Mrs. Willard's. Manhattan papers speak of it in terms of approval.

Prof. Failyer returned on Wednesday from attendance upon Court in Montgomery County. The Professor's presence produced conviction at least in the mind of one of the suspects, for he slipped his bail with bonds of \$2,000.

It seems a pity that the railroads of the State cannot agree to give to students of the various Colleges the full benefit of holiday rates by extending the time of sale of tickets at the educational centers to cover the full two weeks of the holiday vacation.

The body of students and a goodly number of visitors were entertained in chapel yesterday afternoon by the third division of the Fourth-year Class in orations, as follows: Nellie P. Little, "Work;" E. T. Martin, "The Scholar in the World;" W. H. Sanders, "Stability of Our Government;" Emma Secrest, "George Eliott;" R. Snyder, "Intellectual Work of the Saracens;" G. E. Sto-

ker, "Our Debt to the Middle Ages;" W. T. Swingle, "Self-Control;" G. J. VanZile, "Power of Ideas;" H. N. Whitford, "The Soldier of the Revolution;" T. E. Wimer, "Patriotism."

Miss Lilla B. Harkins, an advanced student in the South Dakota Agricultural College, spends her winter vacation in studying household economy and sewing with Mrs. Kedzie and Mrs. Winchip, expecting to fit herself for a teacher in similar departments.

Secretary Graham, who delivered a lecture, entitled "Men who get Sidetracked," at the first county meeting of the Riley County teachers, at Leonardville, on Friday evening of last week, reports a good attendance, and great interest in the proceedings.

Taking advantage of the horn craze, C. B. Selby, a First-year student, pays part of his expenses by the sale of the horns of our once abundant but now practically extinct bison. Properly polished and mounted, as Mr. Selby offers them, they make a beautiful ornament.

Mr. Trumbull of Topeka delighted many people at the College on Tuesday with a display of fine engravings. Each in turn, however, left the display with sad recollections of insufficient means to indulge a taste so excellent as might be cultivated by Mr. Trumbull's selections.

The next term will include, besides the regular classes in the course, special classes in arithmetic, grammar, geography, drawing, and algebra. Young men and women over eighteen years of age may be received to special classes, if they fail to pass the full examination for admission.

The Kansas Stock-growers' Association, the Kansas Dairy Association, and the State Board of Agriculture are arranging to hold the annual meetings during the same week in January next at Topeka. These sessions will probably begin on January 5th, and close January 8th or 9th.

Prof. C. G. Lehmer, in charge of the Normal Department of McPherson College, spent the greater part of a day last week in looking over the various departments of the College in company of T. E. Wimer, Fourth-year student, who, it may properly be mentioned here, is fitting himself for work in that institution.

The College Societies have provided by united action a curtain for the chapel stage in the various entertainments of the year. Mrs. Winchip will look after the making of the curtain, Professor Hood provides the machinery for handling, and Prof. Walters will attend to the future adornment in keeping with the rest of the chapel.

Lieut. Morrison has received from the Signal Service Office two sets of flags used in field signals, and will give the Cadets exercise in that part of military training. Notice has also been received that two three-inch rifled guns, carriages, and accoutrements have been issued from the Ordnance Department, U. S. A., for the use of the College.

The mineralogical collection provided by State appropriation has arrived, and has temporary quarters in the Qualitative Laboratory pending some slight changes in the cabinets. There are about 600 specimens—the largest and best part of one of the thousand-dollar collections of Ward and Howell, Rochester, N.Y. Each specimen is neatly mounted, numbered, and labelled, the common name, scientific name, and locality being given. Prominent in the collection are the nine specimens of fluorites; numerous specimens of quartz, among which are several beautiful polished agates from Brazil, and a large specimen of rose quartz from Bedford, N.Y.; polished crocidolites from South America; Alaska garnets, forming almost perfect crystals; a number of beautiful opals, and one diamond. Many of the more common minerals are shown in great variety, and the whole makes a valuable addition to our mineralogical collection.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

GRADUATES AND FORMER STUDENTS.

W. M. Wright, '87, visited friends at the College this week.

Frank P. Graves, student in 1887-88, is publisher of the *Bogue Signal*.

L. H. Dixon, '89, of Pueblo, Colo., hopes to take a post-graduate course in physics and architecture.

W. S. Hoyt, Third-year in 1887, and now a resident of Colorado Springs, Col., was a pleasant caller on Friday last.

Prof. W. A. Quayle of Baker University, Second-year in 1879-80, lectures this evening at the Manhattan M. E. Church.

D. A. Webster, student this term, who dropped out three weeks ago, is employed in the *Herald* office, Phillipsburg, Kansas.

To J. W. Shartel, '84, belongs the credit of "working up" a Farmers' Institute at Sedan, of which mention is made elsewhere.

A private letter states that Geo. Adgate, Second-year in 1888-89, is employed at a Government lighthouse on the coast of Maine.

Jas. M. Graves, Nortonville, a student here in 1873-74, replies to our request for old catalogues by sending two copies of earlier issues.

J. D. Nowark, student from Marshall County in 1887, writes from his present home in Sedalia, Mo., for later information concerning the College.

Mrs. Issola I. Embry *Burtner*, of Ottawa, student in 1882-3, is visiting her sister in Manhattan, Mrs. Alberta M. Embry *Wahl*, also a student in that year.

A recent private letter from C. J. Cotey, Secretary of the State Agricultural College of South Dakota, announces a degree of prosperity attained by that institution which is highly gratifying, and which has not been marred by the recent evolution of the Territory into the State. Mrs. Cotey, formerly Miss Dalinda Mason, '81, is a sister of Foreman S. C. Mason of the Horticultural Department.

Among the former College students in attendance at the Leonardville meeting of the teachers last week, are remembered W. H. Sikes, '79; W. J. Burtis, '87; R. U. Waldraven and E. M. Paddelford, '89, among the graduates; and J. S. Gould, E. J. Davies, Lizzie McIlwain, Ivy Harner, R. C. Harner, R. C. Abell, E. J. Abell, Orpha A. Loofbourrow, Katie Hibner, Nora Hibner, and E. B. Senn of those who have not yet completed the course.

D. G. Robertson, '86, reports prosperity for himself and wife in Osborne, where Mr. Robertson is Clerk of the District Court. He says: "My official duties keep us both very busy, and the office pays me very well. I raised 1,162 bushels of wheat and about 2,500 bushels of corn on my farm this season." Mr. Robertson contributes items of interest concerning other old students. He speaks of O. G. Palmer, '87, as Principal of the Alton Schools, and states that he has the reputation of being a successful teacher and a hard worker; and of Mrs. Maria Hopper *Getty*, student in 1884, as rejoicing with her husband in the birth of a son.

BULLETIN NO. 8—SMUT IN OATS.

The Experiment Station this week issues Bulletin No. 8, "Preliminary Report on Smut in Oats," by Prof. Kellerman and Assistant Swingle. There are sixteen pages of text and four full-page plates, the latter entitled, "Smut of Oats," "Germination of Smut Spores," "Natural Enemies of Smut," and "Stinking Smut." The Bulletin treats of the name and history of smut, nature of injuries to the host plant, botanical and microscopic characters, methods of prevention, and natural enemies of rust, with a careful record of experiments. A page is also devoted to stinking smut, affecting wheat. The whole is summarized as follows:—

"Oat smut is caused by a minute parasitic plant called *Ustilago segetum* (Bull.) Dittm.

"The parasite is carried with the seed oats, and seed from smutted fields will produce a smutty crop.

"It is doubtful whether the disease is ever occasioned by the use of manure which contains smut from straw or grain.

"The disease is more destructive than is usually supposed, the counts in the vicinity of Manhattan in 1888-9 showing a loss of over 11 1/3 per cent.

"The financial loss from this source to the neo-

ple of the State is perhaps over a million dollars annually.

"In ordinary cases, the disease can be entirely prevented by soaking the seed 15 minutes in water heated to 132° F.

"The other fungicides used, while decreasing the amount of smut, at the same time also interfered with the germination, and reduced the vigor of the plants.

"Seed from clean fields (if the adjoining fields were not smutty) will produce a crop of oats free from smut.

"The natural enemies, both vegetable and animal, are in this case of little practical importance, since the seed can be both easily and effectively treated.

"Stinking smut, to be distinguished from the black smut (but like it preventable), and especially injurious to wheat in extensive portions of the State the present year, is also due to a minute vegetable parasite belonging to the group of *Fungi*."

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Ionian Society.—President, Fannie Waugh; Vice-President, Mamie Houghton; Recording Secretary, Effie Gilstrap; Corresponding Secretary, Susie Hall; Treasurer, Julia Pearce; Marshal, Doris Kinney; Critic, Alice Vail; Board of Directors—Anna McConnell, Maude Whitney, Myrtle Harrington. Meets Friday afternoon at three o'clock.

Webster Society.—President, E. T. Martin; Vice-President, G. E. Stoker; Recording Secretary, P. C. Milner; Corresponding Secretary, H. Darnell; Treasurer, C. A. Campbell; Marshal, W. P. Tucker; Critic, J. Davis; Board of Directors—G. E. Stoker, H. Darnell, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at eight o'clock.

Hamilton Society.—President, G. Van Zile; Vice-President, A. F. Cranston; Secretary, R. J. Brock; Corresponding Secretary, C. Cobern; Treasurer, A. K. Midgley; Critic, Ben. Skinner; Marshal, W. S. Pope. Directors—Messrs. Cranston, Waugh, Campbell, Balderston, and Hartley. Meets Saturday evening at eight o'clock.

Alpha Beta Society.—President, Emma Secrest; Vice-President, E. P. Smith; Recording Secretary, B. H. Pound; Corresponding Secretary, G. L. Clothier; Treasurer, Jennie Greene; Marshal, Nellie McDonald; Critic, W. W. Hutto; Director, V. O. Armour. Meets every Friday afternoon at three o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corlett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

HAMILTON HALL, December 7th.

The attendance at Society last meeting was large. The exercises were opened with prayer by G. L. Melton. Messrs. I. C. Jones and O. H. Hermley were initiated members of the Society. G. Toothaker gave a declamation, having for his subject, "The Encampment at Lexington." For Judges in the debate Messrs. Pierce, Rice and Rhodes were appointed. The question, "Is the influence of the United States favorable to morality?" was opened by C. H. Manly. This gentleman gave statistics in regard to the crimes committed some years ago and those committed during recent times. Taking these figures and comparing them, it might be seen that crime was rapidly diminishing. J. A. Rokes continued the discussion on the negative. The immigration of foreigners to this country was cited as an example of immorality. R. J. Brock was the next speaker on the affirmative. He spoke of the influence of the public schools and the many churches that have lately been established on the laboring classes of the present. H. B. Gilstrap gave illustrations of the immorality of the present. One of these was the concentration of wealth by a few influential men. In closing the debate on the affirmative, Mr. Manly stated that a country could not improve in all other ways and not improve in morality. After a closing speech by J. A. Rokes, the Judges rendered a decision in favor of the affirmative. F. A. Campbell delivered a declamation about "Calling the Family." Part of this selection was original with Mr. Campbell. C. M. Ginter's declamation was good, considering that it was the gentleman's first attempt. W. A. Anderson, with the help of F. A. Waugh and U. G. Balderston, played a soul-inspiring Lellie's waltz written in the key of G. L. S. Strickler read an essay in regard to the society privileges and duties. G. W. Wildin had for the subject of his select reading "The Talk of the Jay Bird." Samuel Van Blarcom delivered a very good oration about Sectarism in Schools. G. T. Morrison discussed the character of John Brown, the great slavery reformer. There was considerable discussion in regard to the man. U. G. Balderston discussed the organization, work, and disbandment of the famous Ku-Klux Gang. After another selection by the music committee, the Society adjourned. C. E. C.

SOCIETY HALL, December 6th.

The Alpha Beta Society was called to order by President Secrest. The first on the programme was the song, "Jesus Lover of My Soul," by E. H. Bailey, which was rendered by W. W. Hutto and Tempie McKee in excellent style. Miss McKee has a beautiful soprano voice which shows the effect of culture. Devotion was lead by V. Armour. Roll-call. May Brooks then entertained the audience with a select reading, entitled "Stewart the Painter." W. W. Conner recited an interesting selection, entitled "The Music School." The gentleman has ability as a declaimer, and no doubt will be a useful member. Debate, question, "Resolved, That a man will do more through love than fear." Messrs. Thackeray and Walker argued the affirmative. Messrs. Armour and Gamble defended the negative. The argument on both sides of the question was very good. The Judges, Messrs. Newell, Hoop, and Hopkins, decided two to one in favor of the affirmative. Martha Cottrell presented a creditable *Gleaner*, with the motto, "Be prompt and faithful in everything." Recess. The music committee, Mr. Hutto, with the assistance of Mr. Smith and Misses Hoop and McDonald, then rendered an interesting song, entitled "Don't Mind What They Say." Miscellaneous business. Assignment of duties. Report of Critic. Reading of the minutes. Singing by the congregation. Adjournment. G. L. C.

SOCIETY HALL, December 7th.

The Webster Society was called to order and prayer was offered by S. I. Wilkin. Mr. Mudge was elected and initiated. Discussion of the question, that the resources of the Northern States are greater than those of the Southern. The affirmative was argued by W. S. Arbuthnot and F. J. VanBentham; the negative, by B. H. Pugh and E. M. Curtis. The decision was gained by the affirmative. Declarations by A. M. Wilkes, L. S. Harner, A. E. Campbell, and W. L. Morse. Music committee, Mr. Kirby, was assisted by the quartette, Messrs. Wimer, Selby, Gist, and Pugh. Reading by E. W. Curtis. Webster Reporter by W. T. Swingle. Discussions by G. W. Crouch about coffee, S. C. Harner, earthquakes, and E. R. Burtis, what one might see on a visit to San Francisco. H. D.

SOCIETY HALL, December 6th.

The Ionians were called to order by President Waugh. Singing and devotion was followed by roll-call. Mary Rhodes was initiated. The programme opened with music, a solo, by Anna McConnell. Miss Pender then read an essay on the "Use of Mahogany." The Society listened to a very interesting *Oracle*, edited and read by Kate Pierce. The next was music, an instrumental solo, by Hattie McConnell. Discussions were opened by Miss Kinney and Pierce, followed by other members. The programme closed with music, a solo, by Anna McConnell. The name of Bessie Morrison was proposed for membership. Report of Critic. Roll-call with quotations, and adjournment. S. E. H.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

EDUCATIONAL MEETINGS.

Kansas State Grange, Topeka, December 17th.
Southern Kansas Farmers' Convention, Wichita, December 17th, 18th, and 19th.
State Teachers' Association, Topeka, December 25-27th.
Farmers' Institute, Sedan, January 2nd and 3rd.
Atchison Teachers, Atchison, January 2nd and 3rd.
Kansas Butter and Cheese Manufacturers, Junction City, January 8th.
Kansas Swine-Breeders' Association, Topeka, January 9th.

Leavenworth has a Whittier Club.

In Rawlins County there are now fourteen teachers holding first-grade certificates, thirty holding second grade; thirty-four, third; and three temporary certificates.

The Russell County Teachers held a very interesting meeting at Bunker Hill, Oct. 19th. The total enrollment reached was twenty-five. Of these, six were visitors.

T. D. Thatcher, Prof. Larimer, and Prof. Banta have consented to act as judges on thought and composition in the State oratorical contest, to be held at Lawrence this winter.

The McPherson College *Educator* publishes Prof. C. A. Swenson's lecture on higher education, read before the Central Kansas Teachers' Association at McPherson, November 29th.

A charter has been filed for the Ellsworth Soldiers' Home, to be located at this place. Mother Byckerdike pledges \$20,000, and confidently expresses her ability to more than double this amount by spring.—*Ellsworth Democrat*.

It is reported that Smith Center intends to build and deed to the county a county high school building, free of debt, in consideration that the county accept it and maintain in it a county high school. Other towns are considering similar plans, and it is to be hoped that many of them will succeed.

The average school term of the United States for 1888 was over six months. The average school term of Russell County for 1888 was five months and two weeks. It is a fact worthy of note that the school term of this county is on a steady increase, having gained some three weeks in the last two years.—*Russell School Signal*.

The distribution of the annual report for 1889 of the National Educational Association is nearly completed. The volume is as handsome as its predecessors, and reflects credit upon the Association and its untiring and efficient Secretary, now the President, Prof. James H. Canfield of the Kansas State University. Every teacher should have a copy.

The report just issued of the National Educational Association states the membership of that organization as follows: Perpetual directorships, 2; life directors, 15; perpetual members, 26; life memberships, 170; annual members for 1889, 1,982. Total, 2,194. Of these, Kansas has 3 life directors, 23 life memberships, 6 perpetual memberships, and 94 annual members for 1889, or a total of 93, equal to 4.3 per cent of the whole.

The pupils of the public schools of Kansas City, about 600 of them, have inaugurated a strike for a longer Christmas and New Year's holiday than that which the Board of Education proposes to give them. The Board intended to give the children all of Christmas Week and New Year's Day. This would cut New Year's week into two school periods. The children declare that they do not intend to go to school on the Monday and Tuesday preceding New Year's Day.

We are in receipt of the programme for 1889-90 of the Mitchell County Teachers' Association. It arranges for seven different meetings to be held in the high school building at Beloit on the third Saturday of each month from 1:30 to 4:00 P. M. The plan of providing programmes for all the winter meetings in one arrangement and before the beginning of the season has many advantages, and is being followed by many counties. It gives everyone a chance to do something and provides enough time to permit thorough preparation. The officers of the Association are James M. Cox, President; E. E. Brewer, Vice-President; Clara S. Brown, Secretary and Treasurer.

The Board of Directors of the Tonganoxie school have admitted the two colored children of the James family to the white schools in accordance with the decision of Judge Crozier, but will admit no others until it is so decided by the Court. The Board claims that the order of the Court applied only to two children. Many of the colored

people contributed money in taking the case to the court, believing if an opinion favorable to the James children was rendered it would apply to all. It is reported that the white children, though they were admonished by their parents and the teachers to treat the colored children well, are making it as disagreeable as possible for them.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

MANHATTAN ADVERTISEMENTS.

R. ALLINGHAM, dealer in Fresh and Salt Meats. Special attention to student trade. Goods delivered free.

W. P. HOLMAN,—Drugs and Toilet articles, Fancy Groceries, Fruits, Confectionery, Nuts, Cigars and Tobacco.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

HENRY HARRINGTON,—Livery and Feed Stable. The best teams in the city. Special care given to stabling and feeding horses for the public.

SWINGLE & VARNEY—Book Store. Full line of School and College text-books, school supplies, etc. Call and see us. You will always have a welcome. 320 Poyntz Avenue.

BATH ROOMS.—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. PETE HOSTRUP, Proprietor.

LESLIE H. SMITH, Boots and Shoes, 302 Poyntz Avenue, first door west of Stingley & Huntress. A full line of Rubber foot wear of the best quality at the lowest prices. Mens' all Solid Leather Dress Shoes, \$1.05. Ladies' Fine Dongola Button Shoes, \$2.00. Reliable goods at low prices.

MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

CORN AS FUEL.

ON a recent trip to the southern part of the State the writer was greatly impressed with the extent of the corn crop and with the low price that prevails. On many farms, large ricks of husked corn could be seen without other protection than that given by the bare ground and the open sky. The principal objects in thus temporarily disposing of the grain seem to be to give opportunity to gather the crop during the fine weather, and to hold the corn for a rise in price that it is hoped will soon come. An inquiry at a point where these ricks of corn are especially abundant, elicited the interesting fact that corn brings, at the railroad station, twelve to thirteen cents per bushel. At the same place, coal is selling at four dollars per ton. It is common to hear harsh criticism upon the wasteful way of keeping corn, and upon using corn for fuel. But a very little calculation will show that neither practice can bring loss this year. When corn must be hauled six to eight miles to market, and coal hauled back for fuel, it may well be questioned if it would not be more economical to burn the corn instead. At thirteen cents per bushel of ear corn, a ton will bring three dollars and seventy cents. While I can not give the relative fuel value of corn with any degree of exactness, it may be safely said that a ton of coal at four dollars is a somewhat cheaper fuel than corn at \$3.70. But when it is remembered that a ton of corn is to be hauled to town, and for it less than a ton of coal hauled back, it will be apparent that the corn is much the cheaper of the two on a farm a few miles out. This test of actual value and of cost should determine the course to pursue. Any sentimentality as to its being wrong to burn that which may answer as food, and thus relieve want, will be, and should be, thrown away upon those who come face to face with the real facts in the case. If one can raise his fuel on his farm more cheaply than he can buy it, it is but common sense to do so. If corn or any other food material be this cheaper substitute for commercial fuel, the case is not altered.—*Prof. Failyer.*

SETTING THE TABLE.

ONE of the first things a young girl is allowed to do in the way of helping about the house is to set the table. If she be taught to properly set it,—to put things in their places, and to think about the reason why they are so placed,—even the every-day task will not only be pleasant, but will be profitable in many ways. Too many house-keepers forget that there is a right way, even in so simple a thing as setting the table that the dishes may be in proper places, and that every article on the table has some place where it belongs. For many of these articles custom has decreed a certain place, but many again have their places decided by each house-keeper. There is always some reason for the edict of custom, or for the decision of the house-keeper. Usually this reason has grown from some real or fancied need. It may possibly grow out of an artistic sense, finding that a certain dish always looks better in a certain place; but, wherever the dish belongs, it should always fill that place unless there be a very good reason for moving it. Especially should this be insisted upon if a young person set the table. The methodical placing of the glass always at the right and the salt always at the left of the napkin, or the careful laying of knife, fork, and spoon straight with the table, is a training in habits of exactness; and the seeing that the folds in the table-cloth are not awry is always a lesson in neatness.

However, there is, as soon as a young person

really learns how to set the table in one way for certain purposes, an opportunity to exercise taste and judgment in re-arranging the dishes—not simply to move one or two things, but to so place the whole or such parts as will alter the whole appearance of the table without marring either its symmetry or the usefulness of the place for each dish.

When it is said the bread plate should always be in a certain place, this does not mean it should be exactly so far from the center or from one side of the table; but that it should be so near to the mother, wherever she sits, that she may easily help her family. When it is said the salad must fill one place, this means that the person who serves the salad should determine its position.

While every house-keeper has her own plan about the setting of her own table, and while that plan should be scrupulously carried out so long as a very young person or a thoughtless person does the work, still there is much room for the thoughtful mother or the artistic daughter to vary the meals in quite a degree by the differences in setting forth the food. A roast turkey may be most appetizing as a center-piece for a dinner table; but, standing at one side, with the vegetables anywhere, but nowhere in particular, and everything else wherever it happens, even a roast turkey may be made undignified, and the table be simply a place to eat, when a few touches would make it artistic and enjoyable.

The gratification of hunger is not the only incentive to meet about the family board three times each day; and proper arrangement of the dishes, of the food, for eye as well as taste, will pay in many ways. Nowhere does careful home-training show more than in table manners. Cultivation of dainty habits makes purer minds. The setting of the table will have an influence on the people who eat about the board; and even the person who puts on the dishes and food may help mould the characters of the household; for all life is made up of little things.—*Mrs. Kedzie.*

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial train.

Lessons in instrumental music—two a week—are from \$10 to a term, according to its length; one a week, \$6 to \$3.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen, and during the fall and spring

IS FRUIT-RAISING PROFITABLE?

This question is frequently asked, but not easily answered. Many jump to the conclusion, from perhaps a single fact, that fruit-growing must be very profitable, and so go into it themselves, or advise others to do so. There are many things to be considered in answering the question as to fruit-growing. In some localities, it may be fairly remunerative, while in others not worthy of attention. It takes a long time to bring a pear or apple orchard into good bearing condition, even if all the conditions are favorable. We have found, after a long experience, that pear-growing, with average success in raising fruit, is not better than loaning money at six per cent interest. Apple-growing is no better, if as good. We speak of average results. Of course there are exceptional cases where growing such fruits shows larger profits. The raising of peaches and plums in the Eastern States has not been profitable of late years, while in some of the Middle and other States it may have been so.

The small fruits show better results as a rule. There are those who make the growing of small fruits a profitable business, and there are good reasons why they may. We are constrained to admit that fruit-growing on the average is more profitable than general farming, but in this as in every other branch of business it must be conducted systematically. The time has gone by when poor or indifferent fruit can be sent to market in a hap-hazard way, and pay even the cost of production. The question with which we started can be answered yes by many, and no by many, and will continue to be so answered as long as time lasts. Some men cannot make fruit-growing or any thing else profitable, while exactly the opposite is true with others.—*The Congregationalist*.

ANOTHER VIEW.

"A good fruit tree is worth fifty dollars," we heard an old farmer say recently. If this is true, an orchard of one acre containing fifty trees should increase the value of the farm upon which it is situated by the pleasant sum of \$2,500—less, of course, the original value of that individual acre. While it might be difficult to find a purchaser who would accept this valuation, my own experience inclines me to the belief that the farmer's assertion was not far from right. A money yield of three dollars per annum from each tree would give six per cent upon this capitalized value. It is a poor tree that will not average this, even allowing for off years, and off years are not so frequent as to alternate regularly with the bearing ones. A healthy tree, properly cared for, will give a crop two years out of three that will pay for harvesting. Occasionally a tree will give a crop that will pay the interest for many years in one.

An Early Richmond cherry tree paid me last year eight dollars, besides the fruit used at home, which was sufficient to pay entire cost of gathering. From a sweet cherry tree this year I sold three and one-half bushels at two dollars per bushel.

Two Chickasaw plum trees, growing so close together that their branches intertwine as if they were one tree, the two covering a space of about 500 square feet, frequently pay ten dollars in a season, which would be at the rate of over \$800 per acre. A pear tree near by yields ten bushels in a good season, and one dollar per bushel is not an unusual price. Three early apple trees this season gave over fifty bushels, which sold at from 80 cents to \$1.20 per bushel. The trees were so very full that I had to commence picking while yet very green, to save the limbs from breaking. Yet the same trees last year gave a crop that paid more than six per cent upon a value of fifty dollars each.—*American Agriculturist*.

POSTAL SAVINGS BANKS.

The Postmaster General, in his annual report, favors postal savings banks. He suggests their establishment at 10,000 of the fourth-class offices in towns where such facilities are most needed, leaving the extension of this privilege to be determined after a trial of two years. He suggests three plans: First, to accept of limited deposits, upon which interest at the rate of not more than 2 per cent be paid; second, if objection be made to the Government obligating itself to pay interest, accept deposits with an agreement to invest and distribute their earnings less $\frac{1}{8}$ of 1 per cent for the cost of service; third, if it is deemed inadvisable to undertake any such obligation, offer the postoffices as depositories without interest, affording the people

convenience and safety. In each case the Secretary of the Treasury would loan the money, equitably distributing it to the banks in the State where the deposits originated to it keep in circulation, requiring United States bonds as security, and interest, if the Government pays interest, but not otherwise.—*St. Louis Grocer*.

KANSAS THRIFT.

Farmers are reporting the corn crop yield larger than it has been estimated.

The irrigating ditch in Hamilton County was tested last week, and the farmers and citizens of Syracuse were delighted to see water flowing bank full.

There is actually a famine in Kansas, but not the kind that makes people weep. The railroads find that they can not furnish transportation for the immense crops raised this year, being short of cars. It is a car famine.

One day recently the demand upon the Santa Fe railroad for grain cars to move the corn and wheat crop on their line was over 1,000 cars in excess of the company's ability to fill, notwithstanding the company had transformed every spare stock car into a grain car.

It is stated on very good authority that the Santa Fe has ordered 900 freight cars from the Merchant's Dispatch line, to be used in transporting a large amount of wheat and corn for eastern grain merchants from points in Kansas on the Santa Fe line. The grain is for export, and will be sent over the Santa Fe to Chicago, and over the Lehigh Valley line to the coast.

Kansas wheat is establishing a great reputation for itself. An exchange that evidently knows what it is talking about says that the wheat makes a granular flour, and the bread made from the flour is a creamy white color, retaining its moisture longer than bread made from the soft wheat. In many parts of the East and England, the demand for this particular kind of flour has greatly increased the demand for Kansas wheat.

So heavy is the shipment of corn and wheat from the State at the present time that the railroads are simply unable to handle it. They have brought every car into service, and where it is possible to do so have borrowed or leased cars from eastern lines. There has never been such a heavy freight traffic in the history of Kansas. Many farmers say they have been obliged to pile up their corn along the railroad track and wait days for cars.

THE WORLD'S STEAM MACHINERY.

According to a recent publication of the Statistical Bureau at Berlin, four-fifths of the steam machinery in the world has been constructed within the last twenty-five years. France has 49,500 boilers, 7,000 locomotives, and 1,700 ship boilers; Austro-Hungary, 12,000 boilers and 2,400 locomotives. In the United States, the steam machinery, exclusive of locomotives, has 7,500,000 horse power; in England, 7,000,000; in Austro-Hungary, 1,500,000. There are some 105,000 locomotives, with 3,000,000 horse power, in the world. All the steam machinery in the world possesses 46,000,000 horse power. The one-horse power of a machine operated by steam is equivalent to the combined strength of three ordinary horses, and the strength of an ordinary horse is equivalent to the combined strength of seven men. From all this the statistical bureau at Berlin draws the conclusion that the steam machinery of the world does the work of 1,000,000,000 men, or twice the working population of the globe.—*Easter's Implement World*.

EXPORTS OF APPLES.

The exports of apples from all American ports for the week ending Nov. 23rd, as reported by A. C. Lombard's Sons, were 48,211 barrels, including 8,933 barrels from Boston, 12,277 barrels from New York, 27,001 barrels from Montreal. For the season, the total exports have been 371,608 barrels, including 81,081 barrels from Boston, 90,244 barrels from New York, 162,526 barrels from Montreal, 25,733 barrels from Halifax, 12,000 barrels from Annapolis. For the same time last year, the total exports were 784,500 barrels, including 196,011 barrels from Boston, 242,319 barrels from New York, 291,692 barrels from Montreal, 54,484 barrels from Halifax. Boston's week's shipments were 8,482 barrels to Liverpool, and 451 barrels to London.—*Exchange*.

COLLEGE SOCIETIES.

December 10th.

Before half past seven o'clock the College Chapel was filled to overflowing by an anticipative audience called together to witness the eighth annual exhibition of the Alpha Beta Literary Society. At fifteen minutes before eight, President Secrest, accompanied by President Fairchild, made her appearance upon the rostrum, and they were greeted with prolonged applause. The audience was quieted by the beautiful strains of an "Overture to Martha," played by Miss Maude Parker, after which President Fairchild led in invocation. Miss Secrest gave a short but beautiful welcome address, in which she, as President, extended the kindest welcome of the Society to our guests. The next on the programme was a chorus, entitled "Storm King," by twenty-four voices. Miss May Harman then favored the audience with a declamation, entitled "The Witch of Wenham," in which she portrayed the horrors of the Salem witchcraft, and showed how a lover rescued his betrothed from the fiendish laws in force in those days. Miss Harman held the attention of the audience during the entire recitation, and was heartily applauded at the close. The "Duck Song" by Messrs. Hutto, Parker, Clothier, Westgate, and Smith, was encored. The chorus, which was an almost exact imitation of the music of these birds, was suddenly brought to a close by the discharge of a gun, which caused the birds to scatter, and leave the stage. Debate, question, "Resolved, That Idealism is to be preferred to Realism in Fiction." Miss Delpha Hoop argued the affirmative by showing us that paintings arouse in us noble feelings only when they follow the ideal. She proved that the pleasure and profit which we experience in reading Dickens's beautiful idealistic pictures of life is due to the fact that those pictures are not real. She closed by giving a thrilling figure of speech in which the smiles of the rays of the sun were compared to the smiles of beautiful heavenly beings. Mr. W. W. Hutto argued the negative. He showed how idealism is a relic of barbarism. The old Greek myths were beautiful creations of the mind, and as such we must always admire them; but, when we compare the civilization of that idealistic period with that of this practical age, we must admit that their beauty was their only good quality. He showed us that idealistic literature only has merit when it approaches the real. Truth is a better foundation for fiction than anything of the imagination. He proved that Dickens took a man in real life, and from his character wrote the loveliest story found in that great author's works. The next on the programme was a lovely piece of instrumental music, entitled "Tarentelle," by Miss Ella Hopkins. Miss Marie B. Senn presented an oration on "A Question of National Importance," which was rendered with all the vigor and beauty due the subject. She showed that a policy which was the best that our nation could produce in its infancy is now the worst policy. She pictured the state of affairs existing between capital and labor today. She showed what a heinous crime monopoly is when it causes the death of thousands of children annually in tenement houses, simply for the want of fresh air. Perhaps, had we more such speakers to force this growing evil upon the minds of the people, the question might be settled before revolution rends our beloved country. Miss Bertha Kimball then presented a *Gleaner* which is worthy to be immortalized. Her editorials were unique, and not a word did they contain but was crowded with meaning. One of the best pieces was a criticism on "Looking Backward." This piece showed that the author is familiar with political economy. We were also treated to several recipes for cooking that were interesting to those knowing the facts in the case. Miss Kimball did credit to the Society as its editor, and in rendering these selections she could not have been excelled by any one in the College. The last exercise of the evening was the "Gypsies' Festival." This was played by about forty members of the Society. The parts of the *Queen* by Miss Tempie McKee, the *Fortune Teller* by Miss Julia Green, and the *Yankee Peddler* by Mr. Hutto, deserve especially to be commended. The actors all, with few exceptions, did extremely well. President Secrest then bid the audience good night, and the crowd dispersed to their homes. G. L. C.

HAMILTON HALL, December 14th.

The exercises of the Hamilton Society opened with prayer by M. G. Riddell. After roll-call, C. P. Hartley rendered a very good declamation, the thought of which was, that the poor boy has as good a chance as the rich man's boy. Such men as Franklin, Garfield, and Grant were taken as illustrations of the statement. R. A. Guilford in his essay, gave a description of a fishing party of which he was a member. Many of the mishaps of the party were related. F. W. Ayers' select reading was a description of a tour made to the city of London, the gentleman traveling making an expenditure of only \$300. Messrs. A. A. Gist, C. D. Adams, and F. R. Smith were requested to act as judges in the discussion of the question, Would a further extension of territory be advantageous to the United States? In opening the question, H. E. Moore requested attention to be turned to the value of the territory already acquired. The cost of the Louisiana purchase would not now buy a block in one of the largest cities in this purchase. The cotton now raised in one part of this purchase would soon pay for the whole amount of the land. Illustrations of other acquisitions were cited. John R. Riddell further argued the question. He spoke more particularly of the social condition of the adjoining countries, as Canada and Mexico. The whites of Mexico form only 20 per cent of the whole population. J. T. Coleman gave some more points on the affirmative. S. C. McAdams further discussed the negative. The judges rendered a decision two to one in favor of the negative. F. R. Smith read "The Story of a Bedstead," giving a description of a double back-action, reversible bedstead. A. E. Martin presented the Hamilton Recorder. The paper was large and contained many good pieces, which shows good work on the part of the editor. R. Snyder in his discussion brought out some interesting points in regard to the life of animals and plants. B. Skinner presented some of the important happenings of the week for discussion. In behalf of the music committee, E. M. Paddleford sang a most appropriate song. Thomas Lyon wished to join his fortune with the Hamiltons, and so had his name proposed for membership. E. M. Paddleford, a graduate and honorary member of the Society, made a pleasing speech. J. H. Criswell, another graduate and member, also addressed the Society in a pleasing manner. Assignment of duties. Adjournment. C. E. C.

SOCIETY HALL, December 14th.

The Webster Society was called to order by President Martin, and the programme of the evening proceeded as follows: The debate was on the question, "Resolved, That civil service reform is a success." Messrs. C. A. Kimball and G. E. Stoker argued the affirmative, and H. Darnell and J. A. Davis, the negative. The decision was given in favor of the negative. Declarations were given by C. E. Davis, A. R. Gilbert, and C. J. Dobbs, each of which deserves comment. Essays were read by J. W. Ijams and Charles Beach. C. B. Selby, committee on music, gave a cornet solo. The Reporter was read by E. C. Pfuetze. We insert the following from an article descriptive of farm life: "Many of the great and good who have won for themselves imperishable names spent their early life on the farm. It does not follow that to the city youth there awaits no career of fame, but there are influences brought to bear on the youth in the country which are certainly little felt by his city cousin. His first days are spent far away from the many temptations which surround so many of our youth today. He rises with the sun, and wanders out through the fragrant fields, across grassy meadows, down sunny hillsides, into the shady forest where he spends many happy hours by the sparkling spring or rippling brook. Who can describe his thoughts or tell how great is the silent influence which these have on his mind?" Discussions were given by J. Stingley, J. B. Paddock, W. P. Tucker, and H. V. Rudy. H. D.

SOCIETY HALL, December 13th.

The Alpha Beta Society was called to order by President Secrest. The first on the programme was a solo, entitled "The Bridge" which was beautifully rendered by Julia Green. Martha Cottrell led in devotion. Roll-call. Miss Crooks presented an interesting essay about "Our Duty as Industrious Beings." Debate, question, "Resolved, That circumstances have more to do with a man's life than his own efforts." Messrs. Westgate and Orr ably presented the affirmative by bringing up many illustrations from practical life to prove their statements. Messrs. McIlvaine and Odle argued the negative with much earnestness and ability. The judges, Messrs. Gamble and Smith and Miss Kimball, decided unanimously in favor of the affirmative. The *Gleaner* was then presented by Grace Clark; motto, "He that walketh uprightly walketh surely." It was ably edited and creditably rendered. Mary Senn, music committee, with the assistance of E. P. Smith, W. W. Hutto, and Ella Hopkins, favored the audience with an interesting song entitled "The Old Man Dreams." Miscellaneous business. Assignment of duties. Report of Critic. Reading of the minutes.

SOCIETY HALL, December 13th.

The Ionians were called to order by President Waugh. Singing and devotion followed. The programme opened with a solo by Miss Houghton. The Society then listened to a declamation by Jennie Selby. The Oracle was presented by Lottie Short. The question for debate, "Resolved, That at the Death of Queen Victoria, England will become a Republic," was argued on the affirmative by Myrtle Harrington, and on the negative by Effie Gilstrap. The affirmative was further argued by Alice Vail, and the negative by Julia Pearce. The judges, Messrs. Turner, Hall, and Shaffer, decided unanimously in favor of the negative. The programme was closed with a solo by Anna McConnell, Hattie McConnell at the organ. Report of Critic.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 25th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.

1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

The Society reports will be found on page 66.

The INDUSTRIALIST will not be issued next week.

The two three-inch rifled guns, of which mention was made last week, arrived Wednesday.

Mrs. John R. Shelton of Lincoln, Neb., is visiting with the family of her brother, Prof. Shelton.

Mrs. S. A. BeVier of Topeka visited the College this week in the company of her sister, Miss Harkins.

A large sack of books from the Department of the Interior was received by the Library on Monday morning last.

Mrs. Graham has been suffering from an aggravated attack of tonsillitis for a week past, and is yet under the doctor's care.

Prof. Popenoe represents the College this week at the meeting of the Southern Kansas Farmers' Alliance, held at Wichita, December 17th, 18th, and 19th.

There has been added to the College herd this week a pair—male and female—of high-bred Poland China pigs from the well-known herd of M. F. Tatman, Rossville, Kan.

The Presbyterian Singing Class gave a musical entertainment last night under the direction of Prof. Brown, in which the College Orchestra and many other students took part.

The copy for Bulletin No. 9, detailing the pig-feeding experiments, will be in the hands of the printer early next week. The Bulletin will be profusely illustrated with fine photo-engravings.

Miss Henshall, daughter of our Regent, accompanied her father on his quarterly visit to the College, and found much to interest her in the various departments, which she visited during class hours.

Genuine October weather to the 21st of December warns Prof. Blake that he must "hump" himself during the remainder of the year if he would have honor as a prophet or the son of a prophet.

Some idea of the immense corn crop on the College farm may be gained from the record obtained from various experimental sorts, the yield being all the way from 65 to 125 bushels of shelled corn to the acre.

The Printing Department has received one of Hardie's newly patented self-supporting mailers, of which much is expected. If it proves to be a "good thing," brother publishers will be notified of the fact through these columns.

Prof. Lantz was "run" by his friends for Councilman in the Fourth Ward, Manhattan, in the election held for a successor to F. H. Coolbroth, resigned. The Professor accepts his defeat gracefully, and congratulates his opponent, Ex-Mayor Johnston.

The Farm Department has sold Berkshires to the following persons since our last report: C. A. Moherman, Johnson County; C. S. Calhoun (3), Pratt County; M. S. Kohl, Butler County; Joseph Shermeck, Marshall County; John W. Calloway, Jefferson County; Kellogg & Hoyt, Rooks County; Chas. Kleiner, Riley County; C. L. Thomas, Geary County. Poland Chinas have also been sold to E. W. Moore and James Ryan of Riley County.

Prof. C. C. Georgeson, recently appointed to the Chair of Agriculture in this College, is a graduate of the Michigan State Agricultural College in the Class of '78, and received the degree of Master of Science from the same College in 1882. He was for two years associated with the editorial staff of the *Rural New-Yorker*, from which place he was called to the Professorship of Agriculture and Horticulture in Texas Agricultural College. The past three and a half years he has spent in a similar chair in Japan. Prof. Georgeson was born in Denmark, having come to this country while a youth,

and here has earned his way through College and into positions of usefulness by his own unaided efforts. He will enter upon duty as soon as possible after the first of January.

The best and sweetest ensilage ever produced at the College, says Prof. Shelton, was taken Wednesday from a "hole in the ground"—the green corn having been sunk in a pit and covered with earth. It has kept perfectly. The details of the experiment will be given in the Annual Report of the Station soon to be issued.

Prof. Shelton and family will leave Manhattan on January 3rd. On the 11th of that month, they expect to sail from San Francisco on the *Alameda*, which is due at Sydney, Australia, February 6th. From Sydney, the travellers will have a journey of 500 miles by rail up the coast, to Brisbane, Queensland, their destination, where they will make their home for at least three years, that being the period for which Prof. Shelton is employed by the Government as Instructor in Agriculture.

Agreeable to a resolution of the Board of Regents, the Farm Department of the Experiment Station has sent to representative farmers in Ellis, Trego, Ford, and Seward Counties, for distribution and trial, considerable quantities of Kaffir corn,—white and red,—milo maize, and dhourra,—these being the best of the drouth-resisting plants. It is to be hoped that their introduction may prove profitable to the farmers of Western Kansas. The Department has more of these seeds for distribution where they will do missionary work.

Prof. Shelton delivered a farewell address to the students in chapel on Friday morning, in which he referred to his sixteen years of service in this institution, and the changes that had taken place in that time—that of all those now connected in any way with the College, Prof. Failyer and Mrs. Kedzie were the only ones who belonged to the "old crowd." The Professor spoke at some length in a happy strain, urging the importance of thorough work, concluding with earnest good wishes and a few words of good bye, feelingly uttered. That his remarks were appreciated by the students was attested by the frequent and prolonged applause with which they were greeted.

The Alpha Beta Literary Society won fresh laurels Thursday evening in its eighth annual exhibition. The story is well told in Corresponding Secretary Clothier's report in another column, and nothing need be added here.

PROGRAMME.

Music, Instrumental—Overture to Martha	Flowtow
MAUDE PARKER.	
Invocation, PRES. FAIRCHILD.	
Chorus	Storm King
Declamation	The Witch of Wenham
MAY HARMAN.	
Quintette	Duck Song
E. P. SMITH, E. C. PARKER, G. L. CLOTHIER,	
P. E. WESTGATE, W. W. HUTTO.	
Debate, Question, "Resolved, That Idealism is to be preferred to Realism in fiction."	
Affirmative, DELPHIA HOOP.	
Negative, W. W. HUTTO.	
Music, Instrumental—Tarentelle	Heller
ELLA M. HOPKINS.	
Oration	A Question of National Importance
MARIE B. SENN.	
Quartette	Dancing O'er the Waves
Gleaner	BERTHA KIMBALL
Gypsies' Festival.	

Music Committee, E. P. SMITH
Play Committee, JULIA GREEN, E. C. THAYER,
NELLIE McDONALD.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

BOARD MEETING.

The called meeting of the Regents on Tuesday, December 17th, found all present at the appointed hour.

Opportunity was granted for statements concerning the forfeited contracts of Messrs. Bullock & Baker and Mr. A. J. Hoisington. After a full hearing, the action of the October meeting was rescinded, and the contractors were granted until February 1st, 1890, to renew contract by payments.

Professor Shelton, having accepted the position of Government Instructor in Agriculture for Queensland, Australia, presented his resignation, to take effect January 1st next. The Board, in accepting the resignation, appointed the President of the Board and the President of the College a Committee to draft resolutions in appreciation of Prof. Shelton's sixteen years of faithful service in this College, and in commendation to his new field of labor.

Upon a full report from the Committee on Employees as to several available candidates for the Chair of Agriculture, and the unanimous recommendation of the Committee, Prof. Charles C. Georgeson was appointed for one year, from January next, at a salary of \$2,000, with house.

Upon recommendation of the Committee on Horticulture, Prof. Popenoe was authorized to carry out the design of the landscape gardener as to the road east from the farm barn, and to grub out for replanting the old orchard north of the Experiment Station building.

The attendance of President Fairchild upon the meeting of the Association of Agricultural Colleges at Washington, and also Prof. Kellerman's attendance upon the annual meeting of the State Horticultural Society, were sanctioned by provision for the expenses. Prof. Popenoe was allowed fifty dollars to meet expenses of attending the annual meeting of the American Horticultural Society, at Austin, Texas, in February next.

The Special Committee upon the Course of Study reported that no change seems at present desirable, but asked leave to continue inquiries until the next meeting of the Board. Such leave was granted.

Estimates for current expenses of the Experiment Station presented by the Council were approved; and the Council was authorized to issue 5,000 copies of the Annual Report, at an expense not to exceed \$1,350.

Prof. Shelton's report upon the condition of Agriculture in Western Kansas, most of which has already been published in the INDUSTRIALIST, was received and filed for future reference.

A vote of thanks was tendered to the Crosby Steam Gauge and Balance Co. of Boston, and to Messrs. Schaffer & Budenberg of New York, for gifts of valuable apparatus for use in the Department of Mechanics.

Special expenditures were authorized as follows: For tools and apparatus in the Mechanical Department, \$10.50; for additional expenses of mounted photographs in Department of History, \$15.00.

The Committee on Grounds and Buildings was authorized to begin at once the construction of a cinder walk, six feet wide, from the College gate to the main building.

President Fairchild was granted authority to provide for the proper expenditure of the special appropriations for physiological and physical apparatus.

The President of the College and the Resident Regent were made a Special Committee to secure the annual address of Commencement Week.

The Board adjourned to meet at the call of the Secretary, with the understanding that no meeting will be necessary before April next.

GRADUATES AND FORMER STUDENTS.

Ruth T. Stokes, student in 1888, is her father's assistant in the postoffice at Garnett.

H. B. Browning, student in 1886-7, is attending the Metropolitan Business College, Chicago.

B. A. Knox, a Second-year student, will spend the holidays in the mountains in pursuit of "big game."

S. C. Wynkoop, Third-year in 1888-9, is employed by the Edison Electric Light Co., South Bend, Ind.

Invitations have been issued for the marriage of Miss Agnes M. Fairchild, Second-year in 1881, with Mr. Charles H. Kirshner of Salina, Tuesday

evening, December 24th, at the residence of the bride's parents.

Mary Cottrell, Third-year in 1888-9, and Clara Dorman, First-year, visited friends at the College Thursday and Friday.

D. W. Working, '88, writes from Denver that he thinks he makes a decent paper of the *Colorado Farmer*. We agree with him.

Frequent mention is made of H. A. Kinney, a former student, as meeting with good success in establishing electric light plants.

Scott Higinbotham, student in 1886-87, now attending the Military College at Salina, is spending his vacation at home in Manhattan.

Marion F. Leasure, '77, a classmate of Prof. Failyer, plans to visit the College during the exercises of Commencement Week in June next.

Mrs. Dalinda Mason *Cotey*, '81, of Brookings, South Dakota, pledges faith with the *INDUSTRIALIST* in five years' subscription money in advance.

C. L. Marlatt, '86, arrived Wednesday to spend the holidays at home, after a year's work in the Entomological Division, Department of Agriculture, Washington, D. C.

J. R. Harrison, '88, postal clerk on the Missouri Pacific from Kansas City to Pueblo, has a record as a mail distributor of 99.80. He may well be proud of his proficiency.

J. W. Shartel, '84, sent to the College a rare specimen on Saturday last, which ought to cause the average amateur collector to turn green with envy. It was an albino "bob-white"—*Ortyx Virginianus*—whose plumage, except a few feathers about the head, shoulders, and breast, which were of the natural hue, were of the purest white. It is to be regretted that so valuable a specimen could not have been preserved, but owing to the length of time which had elapsed since it was taken, this was found to be impossible.

KEEP HOME CLEAN.

The tidy housekeeper wages a continual warfare against dirt. But she must also be intelligent as well as tidy, or else she will not recognize the exact points against which this warfare must be directed. The end to be gained is to get rid of our dead selves. It is for this that we wash our clothes, that we air our rooms, and sweep them, and clean them. But if, after all this trouble, we throw our wash water out at the back door, and have our sink drains and cess-pools open and near, we breathe in and drink in the very substances we have taken so much pains to get rid of. Thrown on the ground, exposed to the air, they become active breeders of most deadly diseases; taken into the very bosom of Mother Earth, they are transformed into elements of nutrition and beauty, and are sent forth anew to bless the world, not to curse it.

Cold weather is approaching, and soon all these active germs, contained in excrementitious matters, will be bound in icy fetters; but Spring will set them free, and send them forth on their mission of death. Is it safe to have such enemies, even in chains, at one's back door, on one's premises? Already they may have taken root in some frail body and be doing their fatal work.

It is the house-mother's place to know about all these matters, and to see that they are properly attended to. She is the home-maker, and to her those under her sway have a right to look for protection from the invisible enemies that lurk in the trash pile, the cess-pool, the open sewer, the "garden-house," the stable. It is for her to know and see to it that the water supply is uncontaminated, that the sewage is safely disposed, and that effete matters of all sorts are covered with earth so deeply that they cannot re-appear until metamorphosed into innocuousness.

The labor and expense caused by one case of diphtheria, of typhoid fever, of malarial fever, might often suffice to put the premises into perfect sanitary condition, and, on the score of economy, prove a valuable investment. However that may be, every woman, upon whom depends a household for home comfort, should see to it that no lurking places for ambushed foes be permitted within her domain. Widely distributed through some cultivated field, as is the latest recommendation of sanitarians, these enemies of life and health may be transformed into fruits and grains.—*Christian Advocate*.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

EDUCATIONAL MEETINGS.

State Teachers' Association, Topeka, December 25-27th.
Farmers' Institute, Sedan, January 2nd and 3rd.
Atchison Teachers, Atchison, January 2nd and 3rd.
Kansas Butter and Cheese Manufacturers, Junction City, January 8th.
Kansas Swine-Breeders' Association, Topeka, January 9th.

Sylvan Grove has voted \$2,000 for a new school-house.

The lady students of the State University are going to organize a fraternity.

The students of Highland University, Brown County, will publish a paper called the *Nuncio*.

McPherson College has bought a boiler and a rotary action steam engine. Ere long the *Educator* concern will be puffing and smoking like the rest of the newspaper world.

Dr. Gobin, President of Baker University, has been elected Dean of the Theological Department of Dupaw University, Greencastle, Indiana. The Doctor's departure from Baker will be a severe loss to that institution.

There will be a semi-annual meeting of the Department of Superintendents of the National Educational Association at the city of New York, February 18th, 19th, and 20th. The programme has not been announced as yet.

Pres J. H. Canfield of the N. E. A. intends to call a special meeting on July 12th, at St. Paul, to consider the question of a National Educational Exhibit, and an International Educational Congress in 1892. To this session, delegates from other countries will be invited.

Bethany College at Lindsborg netted over \$1,000 from a three days' bazaar of donated articles. Governor L. U. Humphrey, Senator H. B. Kelley, and Rev. C. A. Swensson were present and addressed the audience. The Governor's address included an interesting historical sketch of the Swedish people.

The Ottawa *Journal* of last week begins a business local with the following significant sentence: "To Sunday school superintendents, school teachers, and others who buy candies, etc: We would call special attention to the fact that we have on hand and are constantly making a large assortment of strictly pure candies."

The Southeastern Teachers' Association had one of the largest and best conventions ever held in Garnett. Fully 350 teachers were present. The following officers were elected for the ensuing year: President, R. S. Olin, Ottawa; Vice-President, C. M. Light, Neodesha; Secretary, Miss Nettie Cole, Girard; Treasurer, G. P. Benton, Fort Scott.

A Lawrence item: The report of the Superintendent of the City Schools of Lawrence to the Board of Education shows an actual attendance of pupils to be 2,192, an increase of 120 over the same period of last year. The work on the new high school building, which is being built at a cost of 27,000, is progressing rapidly, and will be completed by July 1st, 1890.

Supt. Buel T. Davis of the Atchison schools has made arrangements for a City Teachers' Institute to be held at the Central school building, Dec. 30th and January 1st to 3rd, to give his teachers an opportunity for a thorough discussion of the new course of study which has been adopted. A number of special teachers from abroad have been engaged, and evening lectures have been provided for. One of the lectures will be given by Pres. A. R. Taylor of the State Normal School, and another one by the editor of this column.

The sixth annual meeting of the Kansas Academy of Language, Literature, and Art was held in Topeka Nov. 29th and 30th. President Marsh, late of the State University, was absent on a two-years' sojourn in Europe, and the chair was filled by Vice-President Miss Viola Price of Emporia. The paper of the absent President, "Higher Education in the light of Germany's experience," was read by Prof J. A. Canfield. Mr. Marsh dwelt upon the extraordinary progress which Germany is making in science, in commerce, and in literature, and gave as the cause of this advancement the high standard of scholarship and the practical ideas in regard to higher education which have been prevalent in Germany for so long. An interesting description of the German University system was given, and an earnest appeal for the modern ideas concerning higher education was made. Geo. C. Ryan, Principal of the Leavenworth High

School, in "A Plea for the Study of Language," maintained that, next to the study of the human soul itself, the best means of culture is the study of language. Rev. E. C. Ray of Topeka gave a paper on "Pronunciation." Miss Eunice A. Lyman of Washburn College gave an imaginary account of the life of an ancient Florentine. The poetry of William Wordsworth was the subject of essays from three members of the Academy. Friday evening a lecture on "Savonarola as a Reformer" was delivered by R. T. Savin of Wichita. On Saturday a paper by Prof. Phelps, on the progress of semitic study in America, was read by Prof. Whittemore. Prof. Phelps informed the audience that the study of Hebrew in this country had received a decided impetus. Several other papers were read, and brief reports made by the members of the Academy. About twenty new members were elected, and the following officers were chosen for the coming year: President, Dr. E. C. Ray, Topeka; Vice-president, G. C. Ryan, Leavenworth; Secretary, Ida Ahlborn, Baker University; Treasurer, O. S. Davis, Topeka.

COMMERCIAL HONESTY.

We often hear of "commercial honesty." It is a singular thing. It gives us mixed molasses warranted pure New Orleans. It gives us flavored glucose under the name of maple syrup. It gives us American herrings as French sardines. It gives us Eastern peaches with a California label. It gives us cotton oil for the product of olive. It combines flours and gives it to us as pure buckwheat. It gives us Connecticut tobacco for the real Havana. It gives us canned corn from other States as the product of Maine. It gives us a compound of lard for genuine butter. And it does more—too numerous to mention. Yes, commercial honesty is a queer thing, and wide is the gate and wide is the way for those who travel in its direction.—*St. Louis Grocer*.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth year classes. Once a week all the classes meet, in their class rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

EMIGRATION FROM THE CITIES.

A GREAT city acts like a magnet, and draws with almost irresistible force the idle floating population for miles around. What is the explanation? The large amount of common property, such as parks, public buildings, etc.; the excitements and allurements of city life; the great advantages to be found where wealth and population are concentrated; the charities intended for the alleviation of want and suffering; the variety of employments offered,—all these, we think, furnish a sufficient, though by no means complete, answer to the question.

The effect on the labor market of such a steady influx of people is obvious. It is constantly oversupplied. Fierce competition for place, with the inevitable result of lowering of wages, is the chronic condition, because the supply, especially of unskilled labor, is always far in advance of the demand. Under these circumstances, it is plainly a philanthropic act to start from the city a stream of emigration composed so far as possible of unskilled laborers.

The New York Children's Aid Society has been engaged in this work since 1854, and has sent from the city an aggregate of 85,890 persons. These have gone into all States of the Union, though the majority have come West. The aid given by the Society to families is simply assistance in the matter of transportation. An inquiry is made into the financial resources of the applicant, and a certain proportion of the total cost of transportation is required. Great care is exercised in sending families lest they should prove a burden to the community to which they go. A livelihood of some sort must be assured, or friends must guarantee to support the family until work is obtained. If children, unaccompanied by parents, are sent, the Society provides a place, and by occasional visits of inspectors and by correspondence a watch is kept over them for several years.

The inquiry is often made why the Society does not send out more large boys—the kind that roam the streets, too large to sell papers, and yet not able to do the full work of a man. The answer is that large boys will not remain in their places. Having once tested the pleasures of the city and become accustomed to the freedom and independence of a street arab's life, they cannot become interested or remain contented on a farm. When young boys are sent, however, but little trouble is experienced.

There are hundreds in Kansas who were assisted to this State by the New York Children's Aid Society. Forty-four were located here during the year 1888. Some of the boys, after living a few years with their employers, have taken a course of study in this College, and have done well. Throughout the West there are thousands in comfortable circumstances who were enabled to get their new start in a new locality solely by reason of the helping hand of this noble charity.—*Prof. White.*

DISEASES OF WHEAT CAUSED BY FUNGI. III.

THE experimental acre of the College farm has been planted to wheat continuously since 1880. "During all this time no fertilizer or renovating treatment of any kind has been given it." Since 1883, it has been seeded with the Zimmerman variety.

On November 19th, 1889, this plot was examined, and was found to be considerably rusted. The wheat itself was not attacked by mildew, though the squirrel-tail grass (*Hordeum pusillum*, Nutt.) growing along the sides was covered with

it. By December 5th, the mildew had spread to the rank growth of wheat at the edges, and in a short time had spread all over the field. The most crowded and luxuriant growth of wheat was attacked by this parasite the worst. Even now (January 3rd, 1890,) new conidia are being produced.

The red rust (*Puccinia Rubigo-vera* (D. C.) Wint. II.), like the mildew, has been very abundant during the whole month. New pustules of spores continued to form until after Christmas.

The leaf-spot caused by *Septoria graminum*, Desm., is found in considerable abundance on the lower leaves of the wheat, and, besides it, another leaf-spot has been found. The new leaf-spot much resembles that caused by *Septoria graminum*, Desm., but is caused by a different parasite belonging to the genus *Ascochyta*. It seems to be a new species. Both of the leaf-spots were abundant throughout the month.

Almost every plant in this whole acre was attacked by one or more of these parasites, and many by all four. The lower leaves of every plant are yellow or dead, and it is certain that the injury is for the most part caused by these parasites.

A much larger field of Zimmerman wheat, located about one and a half miles west of the College, was also examined. The wheat was attacked by a rust and mildew all over the field, while only the south half was attacked by *Septoria graminum*, Desm. Enquiry disclosed the fact that this south half of the field had been in wheat this year, while the north half had been in oats. This fact seems to support the surmise, given in the INDUSTRIALIST for November 30th, 1889, that the *Septoria* is perhaps a stage of some one of the many fungi found on the dead stubble or fallen straw.

Of the eighteen varieties of wheat planted in one of the College experiments, the Zimmerman was the most badly diseased. Badger, Currell, Golden Drop, and Purple Straw Red were also considerably rusted and mildewed. White Red May, Red Fultz, Arnold's Hybrid, and others were nearly or quite free from all fungous parasites.

It should be noted that during almost the whole month of December the weather has been remarkably warm and dry.—*Assistant Swingle.*

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percent age and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course

LESSONS FOR FARMERS.

PLANT A LITTLE OF MANY THINGS.

The lesson is being learned, still very slowly, that we must grow a larger range of crops. Each should include not only an orchard, but a berry garden, or both; and attention should be paid to other crops suited to the locality, such, it may be, as lima beans and wax beans. I have nine acres, over half of which is tree and flower lawns. From the rest, I have sold this year of berries, currants, grapes, apples, pears, and beans over six hundred dollars' worth, besides having a complete home supply. The grape crop was almost a failure, and lessened the income \$300. This same piece of land, with traditional tillage of potatoes, corn and oats and grass, would have starved one. I cannot enter into minutæ concerning my work except to show that it is needful in these days to have a large variety of crops. Something is sure to fail each year. Had I this year relied on grapes I should have been in a bad plight. Apples were few, but brought a high price to compensate.

KNOWLEDGE IS POWER.

Another lesson that our farmers have to learn is "student farming," "book farming." There is no mistake about it, old boys, we can beat you out and out, and we do it because we make culture a constant study. When the land was new it did not make much difference how potatoes were planted, but it does make a difference now. We must know the relative values of level culture and hill culture, and the special values of special uses of manures. Our best agricultural journals, our experimental bulletins, our agricultural colleges, point the way. I am astounded at the ignorance of most farmers on everyday matters. How do you manage to keep the knots off your plum trees? How do you manage to get a crop of apples in spite of worms and moths? cries another. They do not know what a codling moth is. They throw pounds of Paris-green on their potatoes where ounces will suffice. The handling of fruit is terribly crude and wasteful. The pork barrel with corn is still the staple diet of many farmers. Sewers are neglected, and cellars are vile stench holes, the consequence being sickness and doctors' bills. Above all men, farmers need to study science. If I had as many children as Solomon, they should be taught, not so much arithmetic and grammar, but more geology and chemistry. And whatever else a farm-house lacks, it should not lack the best journals of agriculture and horticulture.—*E. P. Powell, in Independent.*

THE GREATEST "FREE SCHOOL"—BUT IT HAS NO "GRADUATES."

Observation, like most other human faculties, is susceptible of a high state of development, and those who possess it to a good degree have great advantage in the affairs of life. A farmer who reared a family of four boys drilled them in observing things at every opportunity, and all became smart, wealthy men in consequence, as he believes. One day he brought home a new flock of sheep, which his boys passed in the pasture on their return from school. The father asked: "Boys, did you see the new sheep?" "Yes, sir." "How many are there?" "I don't know." "All of you go back (half a mile) immediately and ascertain. My boys must know what is happening on this farm." The boys kept their eyes open after that. Later, one of these boys, teaching in a school-house at the foot of a wooded hill, sent a pupil out and told him to go around the hill and on his return tell what he saw. The moment he came in another lad was dispatched on the same errand. Boy No. 1 had seen a hill, some trees, and when he tumbled off a fence he saw stars. When No. 2 returned he had seen a partridge nest with thirteen eggs in it, a crow fly off her nest in a tree, a beautiful red and yellow bird, and many more interesting things. That boy had his eyes open, and he made an excellent business man, while the other spent most of his life living on the charity of friends. Another person trained his boy in observation so persistently that he could tell the number of horses, cattle, and sheep every farmer had for miles around; their size, color, and qualities; what crops and kinds of fences and buildings each had, and whether the latter were in good repair or not; what kinds of timber grew in their woods, and much similar information. This training did him great good, and when he came into possession of the home farm, if he wanted a stick of timber or an animal he knew where to go and purchase it; besides, observing so much

the way others did things, he saw how to improve many points in regard to his own farm. Not one man in a thousand can tell whether two horses will match unless he sees them together, but he knew every time. He made considerable money by matching horses and selling them in spans. He never took the horse with him he desired to match, for then the man of whom he wished to purchase would ask more, thinking he could get it for the sake of the match. Trained observation paid him large dividends here. Solving the intricate problems of geometry and trigonometry is an excellent preparation for solving many of the problems occurring in everyday life; but constant observation of one's daily surroundings is better. The school of observation is a "free school" in the strictest sense. It involves no expense for teacher, apparatus, fuel, or books; the only volume required is the book open and spread out before one's eyes gratuitously and perpetually. This school can have no "graduates," for eyes can never behold all there is to be seen.—*Galen Wilson.*

KANSAS THRIFT.

Cheney is to have a seventy-five-barrel flour mill.

Jewell County raised 8,167,068 bushels of corn this year.

It is claimed that Salina has the largest output of flour of any city in the West according to population.

Congressman Anderson has introduced a bill for the erection of a public building at Salina, not to cost over \$100,000.

The Central Flour Mills of Atchison have closed a contract to furnish thirty-six car loads of flour to a firm in Glasgow, Scotland.

The creamery at Peabody, Kansas, has been in operation seven years, and has made money from the start. Eleven wagons are kept on the road gathering cream. The products are mostly shipped to New Mexico. The business this year will amount to \$45,000.

A charter was filed Monday with the Secretary of State for the Kingman County Sugar Company of Kingman, capital stock \$500,000. This Company proposes to build a mill and factory for manufacturing and refining sugar and syrup from beets, and glucose from grain and seeds; also to manufacture vinegar, alcohol, barrels, and barrel stock.

The Agricultural Experiment Station at Garden City reports that it has been demonstrated that the arid lands of Western Kansas can be made productive without the aid of irrigation, by deep plowing and covering the cultivated surface after the sowing of the first crop with matted straw, to retain the moisture and keep the loam from blowing away.

A farmer named Kelley in Pawnee County went there in 1886, and took with him three ewes and one pure-bred Shropshire ram. Taking account of stock, October, 1889, he found that he had raised \$200 worth of sheep and wool, and was offered \$500 for his flock of twenty-five ewes. Seven hundred dollars in three years from such a beginning is encouraging to persons who want to know what can be made raising sheep.

The output of coal in Kansas is steadily increasing, there being now over 40,000,000 bushels annually. Osage leads the counties, with 9,840,189 bushels; Cherokee, 9,331,553 bushels; Franklin, 600,000 bushels; Leavenworth, 4,322,018 bushels. In 1887, there were 4,782 miners and 578 day laborers employed. A considerable product of the mines find a market at Pittsburg and Wier City, this State, for use at the smelting works. At four cents per bushel, men working full time earn from \$14 to \$18 per week. The wages paid in 1887 to 5,150 men amounted to \$1,541,530.10.

YOUR EVENINGS, MY BOY.

Where and how do you spend them? For you, that is a very important question. It matters not whether on the farm, in the village, or in a city, your evenings shape your destiny. Young men can go to the devil as easily from a village as from a city. And all farmer boys are not angels. The mighty men of this generation, and all preceding ones, were wise after the sun went down. A good book is a royal companion; an intelligent and sweet home, a very Eden. Make much of them. You want to be out every night, do you?

Then you'll soon be out of money and without character. Gadding and giddy, grow ghoulish. Whatever your business is, you want to know more about it than anyone in the establishment. The right use of your evenings will lift you up to that pinnacle. Try my suggestion. You'll find it will give you both money and self-respect; also the favorable opinion of every good man, and when you are ready to be married (no hurry) you'll have no need to elope to avoid the old man's boot. This has money in it, and money, our Bible tells us, answereth all things; but better to be without money than to become a miser—a mean, stingy fellow—Creation's blot, whom nobody loves.—*New York Witness.*

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$27,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 80 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics, Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$2,600.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frierer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$7,800.

Kitchen Laboratory. with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$500.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms. with six machines, models, patterns, and cases; worth \$550.

Music Rooms. with four pianos, four organs, and other instruments; valued at \$1,500.

A Library. carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$15,000.

Armory. containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$500.

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Mrs. Lantz visited in Clay Center this week.
Prof. Walters spent Tuesday with friends in Marysville.
Prof. Brown spends the vacation with his family in Leavenworth.
Mrs. Mason has just returned from a week's visit in Wakefield.
Mrs. McCreary was confined to her bed for several days this week.
Mr. and Mrs. Breese enjoy a visit to their old home in Chase County.
The desks in the Chemical Laboratory are being put in thorough repair.
Prof. Popenoe and family spend several days of this week with relatives near Topeka.
Prof. and Mrs. M. L. Ward of Ottawa, spent Saturday and Sunday with Manhattan friends.
Prof. Olin lectured before the Solomon City High School on the evening of December 20th.
Prof. and Mrs. Olin enjoyed a visit, during vacation, from Prof. A. S. Olin and wife of Ottawa.
Prof. Failyer was again called to Independence Christmas week to testify in the liquor case in which he was expert witness.
The Winter Term opens on Tuesday morning next. Examinations for admission begin at nine o'clock on Monday, January 6th.
Fifteen carloads of coal have been received from the State Penitentiary during the past month and stored in the College coal bins and cellars.
Considerable additional space has been set apart for horse sheds in the field back of the Mechanical Building, and five are now being built.
Mrs. Kedzie spends a part of her vacation in visiting her father in Birmingham, Mo., and will visit Mrs. Ewing's Cooking School at Kansas City.
The grades of all First-year students will be sent to parents as soon as they can be completed. Parents of older students can receive reports upon application.

Prof. Walters takes an active part in the Atchison Teachers' Institute, this week. He reads a paper entitled, "Industrial Education: Its History, Aims, and Methods."

President Fairchild will deliver an address entitled, "College Training in Agriculture," at the annual meeting of the State Board of Agriculture, to be held January 8th to 10th.

Secy. Graham and Supt. Thompson had a grand time in hunting quails at Wabaunsee on Monday and Tuesday. Results, some game and lots of good health and revived spirits.

The continued warm weather gives ample opportunity for the work so much needed in improvement of the grounds. Many students find employment during vacation in these tasks.

Students will appreciate the convenience of the commodious pigeon-holes for books which have been put into the studies during vacation. They are numbered to correspond with the Chapel seats.

The Union Pacific is building a round house, side tracks, coal chutes, and terminal facilities at Junction City, consolidating at that point the ends of division now located at Wamego and Brookville.

On Friday evening, December 27th, President Fairchild presided at a reunion and banquet of the Mid-Continental Association of Alumni and Students of Oberlin College, about fifty members being present. Prof. W. B. Chamberlin of Oberlin gave an interesting account of the College in response to the toast, "Oberlin College: what it is,

and what it wants to be." A compliment was paid to our President in a nomination for the place recently made vacant by the resignation of his brother, President J. H. Fairchild, for twenty-three years past at the head of the Oberlin Faculty.

Regent Hessin's name appears in connection with the recent sale of the First National Bank block to the Bank, and the organization of a company for the erection of a hotel on the old Adams House site.

President Fairchild and Professor Olin filled their parts in the programme of the State Teachers' Association at Topeka last week. Professors Shelton, Kellerman, Lantz, Kedzie, and White were also in attendance.

Some interested friend who had a curiosity in that direction, reports that the silver pieces among the wedding presents at the Kirshner-Fairchild wedding numbered an even two hundred. Surely the young couple ought to live well.

A Farmers' Institute is in progress at Sedan this week, in which College representatives take part as follows: "The Corn-Stalk Disease," Prof. Failyer; "A Practical Education," Prof. Olin; "The Silo," Mr. Cottrell.

Desolate indeed looks the bare patch of ground between the Horticultural Laboratory and the Barn, where, until last week, stood the old orchard. It has been grubbed out to make room for newer and better sorts of fruit trees.

The Kirshner-Fairchild wedding supper was prepared and served, under the direction of Mrs. Kedzie, by the special students in cooking; while the announcements were the product of the Printing Department, showing the beauty of the newly cut Stationers' Script, the nearest approach to steel-plate yet invented.

Prof. E. M. Shelton yesterday took the Union Pacific train with his family for the long journey to the scene of his future labors, Brisbane, Queensland, Australia. The marks of his labors at the College for fifteen years will never be wholly effaced, for they have given to much of the development of both farm and College its distinctive characteristics. Multitudes of students in all these years have felt the force of his emphatic, earnest way of putting truth as he saw it. Even those who have sometimes found his judgment severe have been compelled to admit the honest purpose of his life and work. Throughout the State, in farmers' institutes, stock breeders' conventions, and fairs, his direct, forcible speech will be missed and remembered for long years to come. All who have worked with or under him wish him a full measure of success in his new field of labor, and will testify to his fitness for the responsibility by possession of energetic, practical good sense, trained through long experience in direct, experimental practice of farming, with extensive acquaintance with the literature of agriculture.

PIG-FEEDING EXPERIMENTS.

Bulletin No. 9, by Prof. Shelton and his assistant, Mr. Cottrell, gives the results of careful experiments with shorts-bran on the one hand, and corn-meal and potatoes on the other as food for young pigs. In the sixteen pages of the text are six tables, showing (1) the weekly gain and weight of each pig at the beginning and close of experiment, gain of each pig, total gain, gain per cwt. of each pig, and average gain per cwt.; (2) the feed consumed each week by each pig, and the totals for each pig and set (ten young pigs were used); (3) the cost in pounds of feed; (4) weights of the principal organs concerned in the functions of nutrition, the live and dressed weights and shrinkage of each pig from the condition of live weight to that of salable carcass; (5) per cent of water in lean meats of each series; (6) strength of the bones, with the following summary, showing the general results obtained:—

	Total feed. (lbs.)	Average daily feed. (lbs.)	Average daily gain per pig. (lbs.)	Feed consumed for each pound of increase. (lbs.)	Total gain. (lbs.)	Gain per cwt. of pig. (lbs.)
Pens 1, 2, 3, 4, and 5 Feed: Shorts bran	3,402	6.48	1.39	4.66	730	251.33
Pens 6, 7, 8, 9, and 10 Feed: { Corn meal Corn meal and Potatoes	1,250.5 870 870	3.96 4.14 4.14	0.97 1.38	4.08 6.00	597	173.62

The Bulletin contains ten photo engravings showing the cross sections of the ten hogs used in the experiment.

THE KIRSHNER-FAIRCHILD WEDDING.

One of the happiest events that has ever occurred in College circles was the marriage, on Christmas eve, of Agnes M., eldest daughter of President Fairchild, to Mr. Charles H. Kirshner of Salina, Kansas.

Becoming acquainted with each other while both were students at Oberlin College, these two young people learned to know that the esteem in which each was held by the other had gradually ripened into that mightiest and yet tenderest of human passions, true love, and were led to unite their lives in those holy bonds of wedlock which none may break, and which made "of these twain, one flesh."

In the brilliantly lighted and handsomely decorated Presidential residence was a quiet but pleasant gathering of thirty-five guests, the companions and immediate friends of the young people. On account of impaired health of Mrs. Fairchild, a larger assembly of those directly interested in the family seemed unwise, however desirable. The bride's father performed the ceremony in the most impressive and pleasing manner, giving to each of these young people the most precious of all Christmas gifts, a helpmeet for life.

After the heartiest of congratulations from the guests present, the company were invited to partake of a repast which was all that a wedding supper should be, and to which full justice was done. The bride herself made and distributed the "bride's loaf" for the young people to dream over. The remainder of the evening was spent in the merry-making incident to the occasion, and in the examination of the wedding presents, which were both numerous and costly.

After a brief visit to Topeka, where an association of alumni of Oberlin College greeted both among its members, the young people have begun housekeeping in Salina, where Mr. Kirshner has been practicing as an attorney for the past eighteen months.

If youth, health, strength, bright prospects, and good wishes of hosts of friends ever combined to give to a newly wedded couple all that makes life worth living, they certainly have done so here; and we but give voice to the feelings of many when we wish for them a continuance of all these blessings throughout the united life which has so auspiciously begun.

GRADUATES AND FORMER STUDENTS.

C. W. Thompson, '89, called on College friends on Wednesday.

Clara Short, Third-year in 1888-89, was a visitor for several days this week.

L. H. Dixon, '88, has changed his address from Trinidad to Bent Canon, Colo.

Maggie E. Ford, student in 1887-88, is teaching in the Arkansas City schools.

Mattie I. Farley, '89, is compelled by sickness to give up teaching in the Fredonia schools.

E. M. Hutto, student in 1882-83, has been suffering from an attack of mumps at Wamego.

Mrs. Reba Coburn Phillips, a student in 1881, was a guest at the Kirshner-Fairchild wedding.

H. C. Tillotson, student in 1886-7, is mail agent on the Missouri Pacific route from Atchison west.

E. F. Beal, student last year, is teaching at Clarkson, a new post-office in northern Riley County.

H. W. Jones, '88, Principal of the Americus Schools, spent the holidays with his parents in Manhattan.

E. A. Allen, '87, Principal of the Blue Mound Schools, spent a day with Manhattan friends this week on his way to Leonardville.

W. P. Burnham, Third-year in 1877, now Lieutenant Sixth Infantry, with headquarters at Fort Riley, orders the INDUSTRIALIST.

A. M. Green, '86, writes of success in holding down a claim in Modoc County, Cal., and of his intention to spend another year in College.

E. L. Pound, Third-year in 1886-87, with his wife, visited relatives in Manhattan during the holidays. He is employed in the Register's office, Concordia.

E. H. Snyder, '88, who went to Colorado in May last, has since that time spent a month on a ranch learning irrigation, two months in a saw-mill camp, and six months in Middle Park. He has been for two months past, and is now, solicit-

or for the Merchants' Publishing Company of Denver, and writes that he is pleased with his work.

Anna D. Fairchild will spend some weeks in Topeka this winter, hoping to recover strength and well eyes under the care of Dr. McClintock.

W. H. Olin, '89, spent part of his vacation with his brother, our Prof. Olin. The patrons of the Wabunsee Schools, of which Mr. Olin is Principal, speak highly of his work.

J. G. Harbord, '86, writes from Fort Spokane, Wash., detailing the Christmas experiences of a soldier, and announcing his promotion to Sergeant of his Company and Sergeant Major of the Post.

W. A. Quayle, Second-year in 1880, after graduation at Baker University, was appointed Professor in the University, and now, upon resignation of President Gobin to become Dean of the Theological Department of De Pana, Ind., is promoted to the Presidency of his alma mater.

An impromptu gathering of graduates and former students of the State Agricultural College in the Senate Chamber at the Capitol on Friday afternoon, at breaking up of the session of the State Teachers' Association, appointed President Fairchild Chairman, and Mrs. Kedzie Secretary, from whose notes we gather the following points of public interest: Reminiscences were called for from students of earlier days; and Miss Harper, student as early as 1874, and Miss Swearingen, present in 1873, and graduates Calvin, Carey, Whaley, and Allen responded. All the members of the Faculty gave brief addresses of good cheer. There were present the following: Members of Faculty—Pres. Fairchild and Profs. Kellerman, Kedzie, and White. Prof. Shelton arrived after the breaking up of the gathering, but in time to greet a goodly number of old friends. Graduates—Mrs. Nellie Sawyer Kedzie, '76, Professor of Household Economy, K. S. A. C.; J. H. Calvin, '84, Topeka, lawyer; W. A. Carey, '84, Hunnewell, teacher; W. E. Whaley, '86, Manhattan, Superintendent of Schools; E. A. Allen, '87, Blue Mound, Superintendent of Schools; M. A. Carleton, '87, Wichita, Professor Natural History, Garfield University; F. A. Marlatt, '87, Manhattan, Assistant Entomologist, St. Agr'l Ex. Station; C. A. Murphy, '87, Emporia, post graduate student at State Normal; J. E. Payne, '87, Edgerton, teacher; S. N. Peck, '87, Topeka, mechanic; Bertha H. Bacheller, '88, Manhattan, post graduate student and instructor, K. S. A. C.; H. W. Jones, '88, Americus, Principal of Schools; Abbie L. Marlatt, '88, Manhattan, post graduate student and instructor K. S. A. C.; O. L. Utter, '88, Olesburg, teacher; Lora L. Waters, '88, Junction City, teacher; C. E. Freeman, '89, Emporia, post graduate student, State Normal; E. M. Paddleford, '89, Riley, teacher; Florine Secrest, '89, Manhattan; Ina M. Turner, '89, Topeka. Of former students—Belle M. Swearingen, 1873-74, Marysville; Josephine C. Harper, 1874-77, Manhattan; G. D. Knipe, 1879, Manhattan; Lou Mattoon, 1884, Topeka; W. L. Acton, 1885, Kansas City; Alice E. Brown Acton, 1885, Kansas City; E. B. Bacheller, Fourth-year, 1886, Alden; M. H. Myers, Third-year, 1886, Globe; Mary Marlatt, 1886, Topeka; Alice Shultice, 1886, Verdi; Mollie McIlwain, 1886, Tabor Valley; Lizzie McIlwain, 1886, Mayday; J. Frazier, Second-year, 1887, Lucas; Kate McIlwain, 1887, Ashland; J. S. Gould, Third-year, 1888, Randolph; Jennie R. Smith, Second-year, 1889, Riley; Mary E. Toothaker, Second-year, 1889, Johnston. Students of present year—Anna D. Fairchild, R. D. Whaley, and F. M. Linseott, Third-year; S. I. Wilkin, Second-year; T. D. Davis, Eda A. Hederstrom, H. W. Mattoon, J. F. Rumble, and Minnie E. Warden, First-year.

KINDRED INSTITUTIONS.

The following recent Bulletins have been received—
Louisiana, No. 34, Rice and its By-products, pp. 24.
Alabama, Canebrake, No. 6, Vegetables, pp. 13. Grapes, pp. 2.
Meteorology, pp. 2. Soil Temperatures pp. 6.
Ohio, Technical Series, No. 1. Preparatory Stage of the twenty-spotted Lady-bird, pp. 3. Studies in pond life, pp. 15. Bibliography of insects affecting clover, pp. 27.
New Jersey, No. 59, Complete Fertilizers, pp. 21; No. 60, Ground Bones and Miscellaneous Samples, pp. 11; No. 61, Experiments with Different Breeds of Dairy Cows, pp. 11.
The Experiment Station Record Vol. 1, No. 1, contains abstracts of the bulletins issued between Jan. 1st and Aug. 1st, 1889, by the stations of States in alphabetical list from Alabama to Kansas inclusive, a list of publications of the Department of Agriculture from January 1st to August 15th, 1889, and a list of station bulletins received during the same time.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

"Kansas Day," January 29th.

January 30th is the day set apart for prayer for Christian colleges.

The regular quarterly examination of teachers will take place on the last Saturday of January.

The catalogue for 1889 of Eureka Academy gives 15 names in the art department, 45 in music, and 153 in the general course.

The library of Eureka Academy now numbers about one thousand volumes. Two hundred and eighty-eight volumes were added last year.

Col. N. S. Goss, State Ornithologist, has again left for Costa Rica, Nicaragua, and other parts of Central America to study the habits of migrating birds. He intends to stay there until March.

The twenty-second annual report of the public schools of Topeka, just issued, shows the whole number of pupils enrolled during the year to be 5,699. Of teachers, an even hundred were employed, not counting the Superintendent and his clerk.

The *College Echoes* of Lane University agitates a change of the weekly holiday from Saturday to Monday. It seems that among the many institutions which have made the change within the last three years, but few are found who do not consider it a very beneficial move.

Just think of a \$3,000 pipe organ in the bend of the Smoky Hill! That is what the Swedish school at Lindsborg has. The editor of the *Gazette* issued the first titles to land in that region, and this statement strikes us with more force than did the appearance of the first locomotive.—*Kansas City Gazette*.

Russell County stands the peer of any county in the State in educational enthusiasm. This year witnesses twenty teachers' meetings—sixteen district and four county associations. These meetings are so arranged that every teacher has opportunity to enjoy the benefits of twelve associations.—*Russell School Signal*.

A number of new recruits have been added to the Government Indian school at Lawrence. The attendance is now about 475. A large amount of improvements are being made at Haskell Institute, notably among which is the building of a macadamized road to the city. The grading has been completed, and the work of putting on the macadam is progressing.

Why do you not give more attention to thoroughly ventilating your school-rooms? The proper temperature and ventilation of the school-room should receive the constant attention of the teacher. The efficiency of the school and the health of the children demand it. Many devices are at the command of any teacher to secure good ventilation. See that you use them.—*Russell School Signal*.

The Garden City *Sentinel* tells the following: "Prof. R. E. Greathouse of Knauston had a narrow escape from sudden death. While showing the boys how long he could hold his breath, he held too long and dropped apparently dead on the ground. Doctors Sutter and Couch were called, and after applying proper remedies succeeded in reviving the flickering flame of life. Prof. Greathouse is principal of the Amazon school, and his latest instructions to pupils are to breathe according to natural laws."

The State Teachers' Association, held in the halls of the State Capitol, December 25th to 27th, was an entire success. The attendance reaching fourteen hundred teachers and educators, or nearly twice that of former years. The *INDUSTRIALIST* cannot attempt to give a report of the good things that were presented, as ten whole numbers would not suffice to speak of them all. Those interested in the proceedings should obtain a copy of the weekly *Capital*, or wait for the January number of the *Western School Journal*.

Prof. L. L. Dyche of the State University has returned from a five months' trip to British Columbia, where he has been searching for specimens for the museum. The trip has been a very hard one, but has not been without good results. The collection consists of four deer, one web-horned buck, one elk, very large, eight Rocky Mountain sheep, two of which have unusually large horns, a number of goats, one Rocky Moun-

tain lion, which measures nine feet one inch from the end of the tail to the nose, one fine Alaska seal, two wolverines, five white-backed woodchucks, several wood-rats, and a rare fur-bearing animal called a "fisher." This animal is several times larger than a mink, and of the same family. Aside from a large number of specimens of rodents, Professor Dyche secured a complete set of skeletons of all the animals killed, which are very valuable to him in mounting. He has three skeletons of Rocky Mountain goats, the first that have ever been secured. The results of the expedition are not only invaluable for the large amount of materials secured, but for the information of the anatomy of the animals, which will be of great service in enabling him to mount them in their natural positions.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth year classes. Once a week all the classes meet, in their class rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

WORK WINS.

A QUESTION which sometimes presents itself when thinking upon the wonderful advancement of utilitarian ideas and the division of labor that has come to us in these latter days is, Shall everyone work, in the future, with his own hands? Shall the "jack of all trades" and the general utility man cease to exist? Shall the business man of the future know how to write? or shall he depend entirely upon his typewriter and phonograph? Shall the citizen of the future learn to ride on horseback or to drive a team? or shall he depend upon the electric tramway and the cable car for his transportation? Shall the woman of the future learn to sew? or shall she depend wholly upon the sewing machine and the professional? Shall she learn to cook when necessity does not compel it? or shall she eat of another's cooking all her days? Shall the student of the future study to develop his faculties into the capability for receiving and utilizing all of good that may fall to his lot in life? or shall he merely study that which will enable him to pursue a special line of work and omit all else?

In other words, shall they of the future be men or machines?

The extreme division of labor now practiced in some of our industries, which makes it possible for a man to work all of his active life in the making of but one part of a machine, the whole of which he has never seen, would seem to point to the latter idea.

The progress in science, which no longer allows students of vegetable or animal life to be called specialists until they have become proficient in some particular branch of the sciences indicated, would also seem to favor it. And what may be called the hasty idea in education, upon which is founded so many schools with a six-months' course of study, does much to foster it.

But there is another side to the question, and it requires no very prophetic vision to see that the strong current of public opinion in favor of the "all-round" idea in education—the idea of educating the whole man, not a part of him—will, in time, turn the surface drift its own way.

This idea has for its object the harmonious training of man's many-sided nature to the end that he may do his best in any plane in life in which he may be placed, and in doing so, may reach out and take hold on humanity with a strength that shall always be an uplifting one; that he shall see the world as a place in which to do good, and that his subjection of the difficulties of life means an aid to success in others. And it also means that success in life can come only by work; and that he who, by a proper training in early life, is best able to work to advantage, is the one who most surely compels success.—*Secy. Graham.*

SOME SYSTEMS OF TRANSFERRING ENERGY.

THE great advantages inherent in the system of transferring various amounts of energy through long distances by means of electricity, draws not only a technical attention but a constantly increasing public attention. That electricity has no equal for this purpose under many conditions is amply proven, and its success should call attention to the successes of other means of transferring energy. To see, as one does in some of the current popular articles on this subject, diagrams of the method of wiring a house to utilize the electric current for lighting, heating, and cooking, it is sure to suggest the similarity between this and piping for water under pressure with the consequent sewer connections.

The transfer of energy by means of water under pressure from place to place in pipes has many

complete successes both in the matter of long distances and large powers. Charters have been granted many companies to furnish water under a high pressure, say 300 lbs., for uses very similar to the uses for which electricity finds so welcome a place in shop and home. Small water motors were to run the sewing machines, ventilate the rooms, and cool them with fans in summer.

There have been pneumatic successes in the same problem of long-distance transfer of energy. There is on the market a pneumatic door-bell competing with the electric bell for the same purpose. Instead of running a wire, a small rubber tube is run from a push-button at the door to a bell at any usual distance found in a dwelling. High-pressure air has been sent for miles through pipes for use in tunneling machines requiring considerable power. A curious instance of the successful application of this pneumatic principle to this purpose is a large system of pneumatically governed clocks, numbering thousands, which are made to run in unison by means of air under pressure conveyed for miles through the streets in pipes. Similar circuits are governed by electricity.

Steam has its successes in transferring energy for long distances and large amounts, either for heating or for power. Many cities have steam systems of at least five miles in length which furnish steam under pressure either for heating or running engines. It has been adapted to much the same household uses that electricity has except the lighting, and in addition it does the heating. The system was early elaborated in large shops where steam pipes were run to furnish steam to a small engine, which formed part of and actuated each machine tool. This did away with heavy shafting, pulleys, and belting, and substituted piping and small engines.

Hot water at a temperature of 300° is also furnished in long systems to be used for cooking, heating, or by using the steam therefrom for power. While electricity is claiming precedence as a means of transferring energy, at a time when technical information is just beginning to be of public interest, it is easily seen that it is not the sole occupant of this field.—*Prof. Hood.*

WORK FOR THE BOYS.

IN the early settlement of a country there always exists a condition of things in which physical forces is a potent factor, and which uniformly gives place, in time, to another condition in which mental power predominates.

In the good old times, when the country was new, the general store, containing "a little of everything," was all sufficient. Later, it divided itself into many stores, with many special stocks of goods, and with vastly better service to its customers. The early preacher was necessarily a man of physical vigor, whatever may have been said of his mental powers; and, by reason of his peculiar work and surroundings, had but small opportunity to acquire that finer culture and mental tone demanded of his successor. The pioneer teacher was a "hustler," whose work among other pioneers was of immense value in preparing the way for that better work which shortly became a necessity. And the early farmer who occupied rich, raw land, and stocked it with animals possessing the necessary qualities of ability to withstand the rigors of the climate and to "rustle" for their maintenance; whose tools were of necessity but few in number, and but tolerably adapted to his needs, and whose crops were such as would make the surest growth of the coarse farm products then asked of him, has uniformly been obliged to improve his methods, his machines, and

himself to keep pace with the progress of the times, or to see others who did so outstrip him in the race for success.

This being his destiny, the question of how to keep step with the times in thought and practice becomes a vital one.

Like the general store, the farmer, as a class, must divide himself up into many, and make a choice of that special line of farm work for which the individual is best adapted. When he does this, then let him aim at the "fancy" market. If a fruit-grower by inclination, let him grow only the best varieties and market them in the most tempting shape. If a hog-raiser, let him "feed for lean" a little, and grow good pork instead of the great lard skins so commonly seen. If he has a "weakness" for horses, let him furnish the city transfers with a magnificent pair of load-pullers each year, or the business man a good stepper. These cost no more to raise than "plugs," and certainly bring more. If he can produce an extra quality of that much questioned article, butter, he may be sure of an extra price the year round.

All this and more is possible for the farmer who wills, but he must will to be independent of obsolete knowledge and antique methods. The successful farmer of the near future will go to his work with the best attainable knowledge of nature's laws which he has acquired in the science school, the agricultural school, and the experiment station, and will couple with this that experience and practical application of these laws which is best attainable on his own farm.—*Secy. Graham.*

BEET SUGAR IN KANSAS.

THE writer has long been of the opinion that if a portion of the efforts to manufacture sugar from sorghum were spent in intelligent experiment with the sugar beet, a satisfactory result might perhaps be sooner obtained. It has also seemed highly probable that the solution of the sugar problem in Kansas would be found to consist in the utilization of both sorghum and beets by the same factory.

The great obstacle to financial success in the use of sorghum for sugar-making lies in the fact that the working season is limited to from sixty to ninety days. During the rest of the year, expensive machinery must lie idle. Sorghum is not likely to be able to hold its own in competition with tropical cane and the sugar beet, and without the support of a bounty, unless it shall be found that a less elaborate plant may be employed on a number of outlying plantations, which shall furnish sirup to a central factory to be worked for sugar during the greater part of the year. If, however, beets and sorghum both be worked by a factory, a large portion of the machinery could be used for more than six, perhaps eight, months of the year, as beets can be preserved in silos if proper conditions of temperature and moisture are observed, for three, four, or even six months without very great loss of sugar. In view of this possibility, the following letter by the Secretary of the Medicine Lodge Sugar Works Company, is of special interest. The letter is clipped from the *New York Tribune*, but it appears in various other papers also:—

Sir: We this day mail you a sample of our beet sugar. It is 99 per cent pure crystallized sugar. We did not filter it, neither did we use any coloring matter or bleaching substance in its manufacture—it is simply almost pure sweet or saccharine matter. We planted 4.4 acres of beets, and it produced 60.8 tons, from which we manufactured a little over 10,000 pounds of sugar, same as sample mailed you this day.

In regard to beet culture, we feel like exclaiming "Eureka," and feel confident that it, combined with the sorghum sugar, will in the near future make Southern Kansas a very great sugar-producing country. Yours truly,

C. I. HINMAN, Secretary.

Medicine Lodge, Kan., Dec. 20th, 1889.

(The sample came safely to hand, and proved to be a finely granulated sugar, slightly cream tinted in color, but of remarkable sweetness. We beg to congratulate our Kansas friends on their success.—Ed.)

Considering that the Medicine Lodge people used only their regular sorghum machinery, which is not the best adapted to pulping the beet,

and that they did not filter through bone-black, as is customary in Europe, their result must be regarded as a pronounced success. One hundred and sixty-five pounds of sugar per ton is a result superior to that obtained with Southern cane on many Louisiana plantations. It is said that one hundred and twenty pounds per ton was the ordinary yield of the beet in France ten years ago. A bright future for the beet in Kansas may be confidently predicted.—*Assistant Chemist Willard.*

A TEACHER AND HIS AIMS.

A person inquiring whether he should seek the office of teacher ought to look carefully at the duties required. The first of these is to secure obedience on the part of the pupil, and the second is like unto it, to see that the lessons are thoroughly learned. Where this is not done all higher instruction, moral and religious, must be valueless, perhaps even injurious, as tending to prejudice young people against what is good. I have noticed that the schoolmaster or professor who is ever preaching piety, but who cannot keep order, is of all teachers the most likely to turn away his scholars from religion.

On the other hand, it is equally certain that a disciplinarian or formalist, strict as a Pharisee, is not likely to rear the highest style of pupil. A thorough instructor must aim at something higher than coming up to the requirements of the State Superintendent or his Board of Trustees. He must seek to attract the interest and, if possible, to gain the affections of those whom he would lead and guide. Mere discipline, however perfect, will not generate a living and lively school. With nothing else, there will be a want of attention on the part of the scholars, and a consequent dullness and stupidity in the work executed. It is not enough to have system, there must be life super-added. The teacher who would make lively pupils must himself be alive. It needs fire to diffuse heat. The dull teacher produces dull scholars. Almost all the great teachers I have known have been distinguished for life. Some of them have been lively to excess, and been absolutely without common sense; but they were able to carry on their pupils by the steam of their enthusiasm.

The instructor should set before him a higher aim than merely to exact lessons and impart knowledge. This I fear is the standard adopted by many of our State teachers—he must not only teach in the narrow sense of the term; he has to train the child. He should aim not merely to secure good conduct, but to instill good principles. For this purpose he must labor to form good habits, habits of diligence, habits of truth-speaking, habits of civility to all, habits of kindness—if possible habits of benevolence. In short, he must seek to mould the character, and thereby determine the future conduct and life. It is only so far as he succeeds in this that he can draw the highest satisfaction and receive the highest enjoyment from his work—enjoyment from seeing that he is doing good. To accomplish the highest ends of education, there must be—what God shows to us who ought to be his disciples—love mingled with law—love to stimulate and law to restrain. Every one who knows human nature will be prepared to acknowledge that the teacher cannot secure these ends to the fullest, except making his pupil religious, and this, I may add, he cannot do unless he is religious himself.—*Dr. McCash, in the Independent.*

A MONUMENT OF CENTURIES.

Senator Edmunds of Vermont has a new scheme to celebrate Columbus and America. It is to found a National University in Washington. The senator says: "I believe that the very best use the people's money in the treasury could be put to, in the way of celebrating the quadri-centenary of Columbus's landing, would be the founding, here in Washington, of a National University, which should be to this country what other great universities are to foreign countries. A World's Fair, as a means of celebrating this anniversary, would be in many ways instructive and beneficial, and, by making this country better known to foreigners, might lead to important results. But such results, after all, are largely indefinable, and more or less temporary; they certainly cannot be definitely measured and known. The establishment of a university here, at the national expense, with suitable buildings, and a body of professors of high rank, would, on the contrary, be a permanent

and lasting benefit. Such a foundation would be a constant source of public enlightenment, and an enormous power for the general diffusion of knowledge. It would also be a worthy memorial to all ages of Columbus."

An appropriation of \$5,000,000 would be sufficient to start and endow the undertaking. The "National University" is bound to cut a big figure in congressional debates.—*St. Louis Grocer.*

HALF A CENTURY OF INVENTION.

Those of us not yet fifty years of age have probably lived in the most important and intellectually progressive period of human history. Within this half century the following inventions and discoveries have been among the number: Ocean steamships, street railways, telegraph lines, ocean cables, telephones, phonograph, photography, and a score of new methods of picture-making, aniline colors, kerosene oil, electric lights, steam fire-engines, chemical fire-extinguishers, anæsthetics and painless surgery; gun-cotton, nitro-glycerine, dynamite, giant powder; aluminum, magnesium, and other new metals; electroplating, spectrum analysis and spectroscopy; audiphone, pneumatic tubes, electric motor, electric railway, electric bells, typewriter, cheap postal system, steam heating, steam and hydraulic elevators, vestibule cars, cantilever bridges. These are only a part. All positive knowledge of the physical constitution of planetary and stellar worlds has been attained within this period.

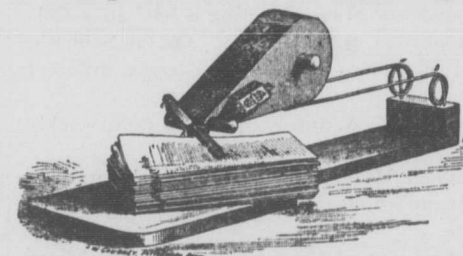
Farming in Washington's day knew nothing of machinery; even the first iron plow, patented in 1797, was a failure, for New Jersey farmers thought it poisoned the soil. Mowers, reapers, and harvesters began to be invented about the same time, and even the ordinary implements were such as it would not now be thought possible to use. The steamboat was practically unknown, and the railroad entirely until forty years later, and the cost of transportation by wagon confined the area of possible production with profit, as to most crops, to the margin of navigable waters. The whole nation could not produce in Washington's day as much wheat as single Territories not yet States now export each year, and when the accounts of a century ago tell of "vast quantities" exported, they really mean less in a year than the country has since moved in a single week.—*Exchange.*

THE BUTTER VALUE OF MILK.

One of the most astonishing things in the world is the looseness with which business connected with agricultural pursuits has been conducted. We have asked many men in our lives what the value of individual cows in the herd was, and they did not know. We have said: You keep your cows for the butter they make, do you? Yes, of course, would be the reply. Special attention was given to butter-making, and yet these people could not tell whether a cow was paying a profit or making a loss all the time. Other kinds of business are not conducted in that way. But the full-milk creamery system has been conducted in the same way. The system of the country grocery store which buys all kinds of butter at the same price has been practiced in the creameries in buying milk. Yellow milk, white milk, and blue milk have all brought the same price. It is all wrong. Hold the individual cow responsible and hold the milk producer responsible. If the cow pays, keep her; if she doesn't, butcher her. If the milk producer produces good milk, remunerate him for it; if he produces poor milk, make the price accordingly.—*Exchange.*

The *Ottawa Republican* has lately taken a statistical fit. From it we learn that in Kansas there are 138,561 farms. Of these, 83.7 per cent are cultivated by the owners, 3.2 per cent by tenant money rental, and 13.1 per cent on shares. For every 1,000 acres of land surface in Kansas there are 113 acres planted in corn, 20 in wheat, and 32 in oats. Lands not in farms, 59 per cent; productive lands, 20.9 per cent; woodland, 1.9 per cent; unproductive farm area, 8.5 per cent.

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CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Thirty-five new students are on the roll.

Three more of Prof. Brown's mammoth music charts arrived yesterday.

The Kitchen has been supplied with a number of new chairs, long needed.

Foreman and Mrs. Shelton are the parents of a boy, born on Tuesday, January 7th.

Several students formed a club and had drill in parliamentary practice during vacation.

President Fairchild and Professor Georgesen attended the meeting of the State Board of Agriculture at Topeka, this week.

The officers of the Experiment Station are at work on their manuscripts for the Second Annual Report, which will be issued in February.

The College will be represented in the Farmers' Institute at Girard, on January 23rd and 24th, by Professors Kellerman, Walters, and Lantz.

Lieut. and Mrs. Morrison returned on Monday from Fort Leavenworth, where they spent the vacation with Mrs. Morrison's parents, Mr. and Mrs. McCleery.

The Drawing Department has received a number of new plaster casts, among them one of heroic size of Diana, of Hadrian's Villa, in Pompeii, recently unearthed.

At the meeting of the State Dairy Association at Topeka, this week, Secretary Graham was re-elected Treasurer, and Prof. Georgesen was appointed Standing Committee on Food for Dairy Stock.

Prof. Georgesen took up his duties as Professor of Agriculture on Monday. He expresses himself as being well pleased with his new home. For the present, he and his family have quarters in the city with Mrs. W. P. Higinbotham, but will soon occupy the residence on the grounds.

Ex-Regent Coburn, Second Vice-President and Advertising Manager of the Husted Investment Co. of Kansas City, Kan., remembers College friends with beautiful lithographed calendars and various specimens of neat advertising cards—all of which show that Mr. Coburn is master of his business.

The Farmers' Institute at Sedan, attended by Professors Failyer, Olin, and Cottrell on the part of the College, was not a success, through lack of preparation on the part of those responsible for the programme, and the absence of some of those advertised to take part. The attendance was quite light.

For the information of those interested, we announce that the edition of Bulletin No. 6, "Silos and Ensilage," is exhausted. Quite a number yet remain of No. 7, "Experiments with Wheat," which will be sent free to residents of the State upon application. The demand for No. 8, "Smut in Oats," and No. 9, "Pig-Feeding Experiments," is great, and the editions will soon be gone.

Under the caption, "Some Famous Old Violins," the Kansas City *Journal* of December 16th, 1889, relates the history of the more notable instruments, among which are a red Stradivarius, dated 1680, made by Urquhart, and a Guarneri bearing the inscription, "Joseph Guarneri, Italia, 1720," both the property of our Prof. Brown and his brother, Prof. Robt. Brown of the Leavenworth Conservatory of Music. These instruments are said to be among the finest violins now in existence.

La grippe has made its appearance at the College, and has attacked both Faculty and students. Professors Failyer, Lantz, Graham, and White were ill of the disease early in the week, and President Fairchild was prostrated with it Friday, while in attendance upon the annual meeting of the State Board of Agriculture at Topeka. Thus far about

thirty students have been visited by the disease, but, while in some cases the attack has been severe, no serious results are apprehended, and the routine of College work will be but slightly interrupted.

Prof. Brown entertained students, Faculty, and visitors during the public hour yesterday afternoon in a discussion of the topic, "Rhythm and Discipline." The question of discipline,—individual self-control,—the Professor urged, is more profound and absorbing than any mere question of abstract science. There has been too great eagerness for knowledge, irrespective of the uses thereof, and that has been most valued which will most surely and quickly bring returns in money. The arts and sciences pertaining to gross matter are considered the *sine qua non* of an education; while those that pertain to self-control and self-sacrifice for the good of others have been neglected or ignored. After showing the necessity of thorough discipline in the army, where so much depends upon absolute and unquestioning obedience, the speaker urged students to utilize their opportunities for securing this discipline—that self-control that shall add grace of movement, attitude, and utterance; that spirit of obedience so essential to true citizenship.

The following bound volumes have been added to our Library since the close of the Fall Term, December 20th: Library of American Literature, Steadman and Hutchinson, Vol. 10; Upton's United States Artillery Tactics; Development of Transportation Systems in the United States, Ringwalt; Mediæval Spires and Towers of England, Wickes; Dewey's Psychology; Seekers After God, Farrer; The Witness of History to Christ, Farrer; History of Ancient Working People, C. O. Ward; The Viking Age, 2 vols., Paul Du Chaillu; Recent Economic Changes, D. A. Wells; Elements of Political Economy, R. T. Ely; The State, Woodron Wilson; Mind in the Lower Animals, 2 vols., Lindsay; School Readers, 10 vols.; Official Records, War of the Rebellion, volume 25, part 2, volume 27, part 1; Agricultural Report of Ontario for 1888, donated by Prof. Shelton; Report of U. S. Commissioner of Labor 1889, 26 vols. Govt. Documents deposited by Secretary of Interior; Narrative and Critical History of the U. S., vol. 8., J. Winsor.

GRADUATES AND FORMER STUDENTS.

J. W. Bayles, '89, left on Tuesday for Ottawa, to attend the University.

I. D. Gardiner, '84, and Ida Quinby Gardiner, '86, are happy in the birth of a daughter on January 9th.

L. H. Simmons, Third-year in 1887-88, is Surveyor elect of Sumner County, and will take the oath of office on January 13th.

O. G. Carnahan, student in 1882-83, was married on November 27th last to Miss Etta Wiley, formerly of Cloud County, Kan. Mr. and Mrs. Carnahan now live near Spokane Falls, Wash.

We had a chat of a few minutes Tuesday with J. W. Berry ['83], one of the leading building contractors of Jewell County. Jim is a graduate of the Agricultural College, and learned his trade of carpentry there; and we are glad to note that he has been making money ever since he left College.—*Manhattan Nationalist*.

THE WEATHER FOR DECEMBER.

The month of December, 1889, will long be remembered and spoken of as a remarkably mild, dry one. The mean temperature for the month was 41.5°. This has been exceeded but once within the period covered, and that was in 1877, when the mean temperature for the month was 41.54°, which is practically the same. The average of the mean temperature for the last thirty years is 29.81°, consequently the month just passed was 11.69° warmer than the average. This is the only instance besides 1877 in which a December has been warmer than the November preceeding it. The highest temperature for the month was 75°, on the 12th; the lowest, 0°, on the 30th, a range of 75°. The coldest day was the 29th, the mean temperature for the day being 18°. The warmest day was the 12th, the mean temperature being 55.25°. The mean temperature of the observations at 7 a. m. was 34.77°; at 2 p. m., 53.93°; at 9 p. m., 38.65°. A cold wave came the night of the 28th: the wind had been blowing hard from the south all day, but changed to the northwest in the night, the mercury falling 30°.

Two slight rains occurred, the total moisture being

but .015 inch, which practically amounts to nothing. The average rain-fall for December is .87 inch, consequently the precipitation was .855 inch below the average. This is the lowest December rain-fall on the record, the next lowest, .20 inch, being in 1859.

The mean barometer for the month was 28.896 inches: at 7 a. m., 28.909 inches; at 2 p. m., 28.879 inches; at 9 p. m., 28.9 inches. Maximum, 29.4 inches, on the 30th; Minimum, 28.11 inches on the 28th; monthly range, 1.29 inches.

There were four cloudless days, and three entirely cloudy; six days were over one-third cloudy. There were three fogs.

The wind was southwest twenty-one times, northwest nineteen times, south fifteen times, northeast thirteen times, north ten times, southeast seven times, west six times, and east two times at the time of observation. The run of wind for the month was 8,046 miles. This gives a mean daily velocity of 259.55 miles, and a mean hourly velocity of 10.8 miles. The highest daily velocity was 576 miles, on the 18th. The lowest, 51 miles, on the 14th. The highest hourly velocity was 47 miles on the 28th, between 7 and 8 p. m.

The table below gives a comparison with the preceding Decembers:—

December.	Number of Rains.	Rain in Inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1859	1	.20	21.75	62	-8			
1860	3	.50	33.44	52	18			
1861	3	1.00	32.53	63	0			
1862	3	2.25	38.58	65	14			
1863	4	2.17	25.72	59	-13			
1864	4	1.11	28.00	58	-6			
1865								
1866	4	2.02	31.03	57	4			
1867	2	.51	35.91	62	15			
1868	3	.81	25.30	57	-16			
1869	4	.52	30.15	58	-3	28.82	29.20	28.45
1870	4	.45	30.07	63	-11			
1871	1	.35	24.73	53	-6			
1872	3	.95	21.07	60	-11			
1873	2	1.67	29.10	65	5	28.75	29.26	28.08
1874	3	.67	32.15	58	0	28.84	29.32	28.28
1875	2	.78	38.68	72	4	28.72	29.11	28.20
1876	1	.50	23.16	60	-11	28.98	29.50	28.56
1877	3	1.55	41.54	67	13	28.81	29.19	28.30
1878	4	.91	21.15	57	-7	28.60	29.33	28.27
1879	2	.62	24.75	50	-10	28.60	29.12	27.97
1880	1	.28	24.40	65	-16	28.69	29.21	27.92
1881	3	.53	38.52	65	16	28.73	29.04	28.20
1882	3	.44	29.59	62	-7	28.72	29.49	28.10
1883	2	.27	33.04	66	2	28.60	29.14	27.98
1884	5	.33	21.70	57	-8	29.68	30.05	29.20
1885	4	1.09	32.82	64	-5	28.97	29.33	28.12
1886	2	1.58	24.34	62	-5	29.05	29.60	28.61
1887	3	.80	26.09	56	-9	29.07	29.88	28.43
1888	3	1.22	33.39	64	10	29.07	29.46	28.47
1889	2	.02	41.5	75	0	28.90	29.40	28.11
Mean	2.8	.87	29.81	61.6	-1.7	28.89	29.37	28.29

Assistant Chemist C. M. Breese.

COLLEGE SOCIETIES.

CHEMICAL LABORATORY, December 6th.

The Scientific Club was called to order by Pres. O. P. Hood. The minutes of the last meeting were read, corrected, and adopted. On motion, it was ordered that the Secretary be requested to submit the "proof" of each abstract to the writer thereof for correction; it was further ordered that members be requested to furnish abstracts, to the Secretary, of their own work. Foreman Mason's is the only one presented, and is given below.

Professor Leo Lesquereux, for many years the leading fossil botanist of America, died at his home in Columbus, Ohio, last October, at the age of eighty-three years.

He was born in the Canton of Neuchâtel, Switzerland, educated at the University of Berlin, his parents intending that he should enter the ministry. The early loss of his hearing prevented this, and he worked for some time at his father's watch factory, but his strong scientific tendencies soon led him into that field of labor.

A treatise on the formation of peat, an important fuel in that country, secured a government prize and established his reputation as a rising young scientist. He came to America in 1850 in company with his schoolmate, Prof. Guyot, upon the invitation of their friend Agassiz, and was employed for some time in the Cambridge Museum of Comparative Zoology. Soon after he removed to Columbus and became associated with Mr. W. L. Sullivan in bryological work. The partial failure of his sight a few years later compelled him to confine his work wholly to fossil botany, upon which his world-wide fame chiefly rests. He did valuable work upon the Geological Reports of Kentucky, Arkansas, Illinois, and Indiana, but his chief works are "The Coal Flora of Pennsylvania and the United States," and Vols. VI, VII., and VIII. of Hayden's U. S. Geological Survey. He was an intimate friend of Prof. Mudge, and one of his most interesting volumes, Vol. VI. U. S. Survey, figures many fossil leaves from the Dakota formation of Kansas.

Assistant Marlatt gave a note on the oviposition of a parasitic fly (*Tachina* sp.) on the heads of the larva of the Hand Maid Moth (*Datana ministra*), in which he gave the details of the egg-laying of the fly.

A. A. MILLS, Secy.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, including percentage and interest, geography, and elements of English grammar. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with classes from the first.

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Washburn College has now 210 students in daily attendance.

The *Beacon* of Baker University comes to us much improved in tone and appearance.

Quite a number of students of the State University were in the clutches of la grippe this week.

The *University Courier* is writing strong articles urging the introduction of military drill at that institution.

The chapel of the Presbyterian College at Emporia, which has just been completed, is said to be a very handsome room.

The Southwest Dickinson teachers will meet at Fairview on Saturday, January 18th. A good programme has been provided for.

The colored people of Olathe have brought suit against the Board of Education to compel the admission of colored school children to all the rooms in the public schools.

The brass band of Lane University gave a concert at Perry during the holidays, but, according to the *Lawrence Journal*, the boys did not bring home much "swag."

Prof. W. I. Graham, former Vice-President of Baker, took part in the memorial services held in honor of Jefferson Davis at Fort Worth, Texas. "When you are with the Romans, etc."—*Baker Beacon*.

For a genuine good time all around, give us Lane University. The Lecompton correspondent of the *Lawrence Journal* says: "The prominent 'take' of the final entertainment of the fall term was a 'Donkey Round' by a trio of old soldiers. Prof. Merham with the drum, Rev. Snyder with the fife, and President Waller with the base drum were the trio.

A change has been made by the Faculty during the last term in our marking system. Under the present plan, the grades on daily recitations for half-term work are read twice a term. Examinations are held at the end of the term. The two term grades and the examination count one-third each on the final average of the student in each study.—*Salina Wesleyan*.

Mrs. D. C. Haskell has resigned as matron-in-chief of Haskell Institute, the Indian school at Lawrence. The *Lawrence Journal*, in noting her resignation, says her place will not be easily filled. She was an intelligent advocate and friend of Indian education, and during her connection with the school she has had heart and soul in the work, accomplishing wonders in her quiet, womanly way.

Governor Humphrey, in his address before the State Teachers' Association, very clearly recognized the necessity of authority in schools by repeating an anecdote: "It is recorded that an English school-master once said to Charles II., then in the plenitude of his power, 'Sire, pull off thy hat in my school; for if my scholars discover that the King is above me in authority here, they will soon cease to respect me.'"

We are in receipt of the Twentieth Annual Report of the Public Schools of Leavenworth, a very handsome, well compiled, and complete pamphlet of about two hundred pages. Beside the usual statistical matter, the document contains some excellent suggestions on various educational topics, such as punishment, punctuality of teachers, regularity of attendance, personal habits, etc., which reflect great credit upon the compiler, Supt. John Cooper. We shall quote from its pages from time to time.

Baker University seems to be unfortunate. Dr. Gobin, the distinguished President of that institution, has been elected Dean of the theological department of Dupaw University, at Greencastle, Ind. If he accepts, Baker will again be without a head. It has always seemed to us that Baker made a mistake when it failed to retain Dr. Sweet. Of course there are more brilliant men than Sweet, but an institution that is as poor as Baker cannot expect to compete with wealthy institutions in obtaining brilliant and distinguished talent.

The winter institute of the teachers of Atchison, held last week, was an entire success, nearly a hundred teachers attending. The purpose of the institute was the study of the new course of instruction, which had been adopted by the Board. The writer was much pleased to find among the con-

ductors two old teacher friends, the efficient Superintendent of the City School, Prof. Buel T. Davis, formerly of the State Normal, and Miss Frankie Davis, now special teacher of drawing in the Public School of Chicago. Our evening lecture on "Industrial Education" was well attended, and the frequent questions asked by citizens present convinced us that Atchison is not very far from starting a manual training school or establishing a slojd department in connection with the public high school.

The *College Advocate* of the Presbyterian College at Dodge City hoists the stars and stripes over a double pica headline reading, "College Building Done." The building was commenced in 1887, and has cost about \$40,000. It is 100 x 104 feet in dimensions, and is 4 stories high. The main hall is east and west, with a chapel 46 x 58 feet on north part of the building. The structure is of brick, trimmed with white stone. From the first story, there are five exits, with the doors opening outward. From the second floor, there are eight exits, doors hang the same as the lower floor; and from the third floor are seven exits, with regular fire-escapes and iron balconies at four of them. There are 25 rooms in the building, besides 6 cloak rooms, and a gallery in the chapel. The finishing is made of Southern pine, and is coated with hard oil. At either end of the hall is a massive stone stair, and at the front entrance one much heavier and more massive leads up to the large, double-action double doors. In the vestibule, is a tiling of beautiful design, and the first door to the left leads to the President's office, in which is a grate with hearth of glazed tiling, and a beautiful mantel. All the door and window trimmings are of bronze. Of the 17 recitation rooms, two are very large. The stone steps have polished iron railing. The height of the tower is 98 feet, from the base of which a very fine view is had of the surrounding country.

DETERMINING THE QUALIFICATIONS OF TEACHERS.

In considering this question, we must remember at least two things: first, that the State which exercises its power to raise taxes for school purposes is properly chargeable with the responsibility of seeing that the money so raised is expended for purposes and in ways which will justify the exercise of the power; and second, that the circumstances of communities are widely diverse, and that qualifications in the teaching force which may, and therefore should, be exacted and secured in one locality cannot be in another. We must simply undertake to get the best service possible under existing circumstances.

Bearing these things in mind, I will venture to state the following propositions, which, in my opinion, should govern the public, its officers and representatives, in determining who may teach in the public schools:—

1. To the fullest extent possible it should be done through institutions established for training teachers, where applicants take a regular course of professional work and have actual practice under the criticism and advice of experienced instructors. The completion of such a course, and the consequent certificate of such an institution, whose standing depends upon the character of its graduates, is more reliable for satisfactory results than any other.

2. Training classes specially and properly organized for the purpose, should be preferred next to the institution exclusively devoted to it. The difference between them will depend, of course, on the difference between the plans of organization, equipment, length of course, etc.

3. Where persons desiring to teach cannot be induced, in sufficient numbers, to take a professional course of study and training, or where the facilities for such a course do not meet their circumstances sufficiently to supply the schools, the question of qualifications must be left to an examination.

4. Examinations for teachers' certificates should be held to be exclusively professional work, and be committed only to persons of established and acknowledged character and qualifications.

5. But we must take circumstances as we find them. The law in cities and country alike commonly commits the work to officers who may not, and in many cases are not, qualified for determining the qualifications of others. It would be best if the law were otherwise, but it is doubtful if it will be made so at an early day. Even qualified persons, however, will differ in degree of quali-

cations and in ideas, and individual standards will necessarily be variable, and certificates so granted will be of little or no value beyond the jurisdiction of the board or officer granting them, which is a hardship to qualified teachers. Moreover, qualified persons are subject to the influences and demands of interested persons. Nearly \$10,000,000 is expended in this State alone for teachers' wages, and efforts to get it, regardless of qualifications, will never cease. Under our system of frequent elections, and this strong and unceasing pressure, even honest and qualified officers will temporize and be found wanting. Therefore, it is necessary that the State should supervise the examinations, determining their scope and extent, fixing the standards and sanctioning the results. The standards fixed by the State should be regarded only as the minimum standards of intellectual qualification. Local officers should be encouraged to extend the examination beyond that prescribed by the State, so far as they may be inclined, and to fix local standards as much above those fixed by the State as they may see fit, and to withhold certificates for any good reason; but no candidate should be certified who does not at least meet the requirements of the State. The examinations should be public, and at stated times and places. They should be, in part at least, in writing, and the papers should be preserved for review in case of controversy over results. Abolish all special and private examinations. If an emergency arises, a temporary permit might be issued, without examination, which would be good until after the next regular examination. Make a system which all can observe, which all officers can fall back upon for protection, and then require all to live up to it.

6. Grade the certificates. Let them clearly show the work performed by the holder. Let the certificates of low grades be for short terms. As the grades advance, lengthen the term. Finally, give a certificate based upon a thoroughly substantial examination and successful experience, which shall be recognized as the professional certificate, and discontinue examinations altogether. Require teachers to advance beyond the lowest grade or experimental certificate or cease teaching, by providing that this certificate shall never be issued to the same person more than a specified number of times. Make it to their interest to reach the highest grade.

7. Never permit the same authority which employs teachers to determine their qualifications, nor let the one authority be dependent upon the other. Employing officers need not employ unless satisfied with qualifications. That is sufficient. They should not be permitted both to license and employ.

8. Require that all officers authorized to issue certificates shall keep all examination papers, and a complete and public record of the standing of every candidate, and of all certificates issued.—*State Superintendent Draper, in The Teacher*.

MANHATTAN ADVERTISEMENTS.

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E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75"

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

RHYTHMIC ART CULTURE.

BY PROF. A. B. BROWN.

"A SOUND mind in a sound body," obedient to a spirit trained in wisdom, should be the goal of every educational institution. Perhaps there are none where the mind is neglected; there are more perhaps where mental culture overleaps itself and undermines the very foundations of mental strength by neglecting the body and the spirit.

What more deplorable picture than that of a young man consuming his forming strength in a too close application to the study of books? The highest authority, perhaps,—Ex-President White of Cornell,—says, in substance, this thing of close application becomes possible after both brain and body become hardened. "No time for recreation is burning the candle at both ends." All colleges claim that these very sentiments find a prominent place in their advice, but to advise is one thing and to provide the means of following the advice, another.

Gymnasiums may be good things where there is wealth and leisure, but what we would recommend is to secure the end—physical culture—where neither leisure nor wealth exists; utilizing for this end, not only our industrial training, but our gathering in the morning for chapel exercises and our opportunities and facilities for military drill on the campus, under a commander so willing and competent.

In any kind of training, a goal must be set up, the sight of which is constantly spurring on to effort. We seldom do a thing for its own sake; it is the results of study—truth found, knowledge gained—that furnishes the greatest incentive to study.

This underlying fact we must recognize in the matter of physical training: The result—the increased strength, the increased grace, the increased self-control, and, above all, the thorough mastery of rhythm, developing a feeling of rhythm not only in the mind, but in every muscle and fibre of the body,—must be held up as the goal to be reached, and furnish a reason for the exercise when the desire or inclination is wanting.

Strange as it may seem, rhythm, though the most important element of culture, either of body or mind, has no place in the curriculum of schools, no text-book, where its principles are simply and scientifically stated, yet Dr. Dwight in the following extract has not overstated its importance:—

"Rhythm is the measure and outline of motion. It is the pulse of life, by which we note its moments. Pulsation seems a universal fact in nature; whatsoever has life manifests it in regular pulsations, in successive impulses, or alternately advancing and retiring waves. Rhythm is the principle of order in the magic world of tones. It gives to sound its wavy outline. It derives melody from harmony. Rhythm is everywhere, and lends a beautiful self-balance to the outgoing of every unimpeded energy. Every art has its rhythm, or something corresponding. Every man has his individual rhythm. All method is rhythm."

"Rhythmical feeling is genius," says Novalis. This rhythmical feeling, this having rhythm in our power, can be secured only by executing rhythmic movements frequently and at regularly recurring times. As habits are formed, as automatic movements are secured, so rhythmic training must be pursued. Frequency and regularity, more than in long-continued exercises, are the conditions of its attainment.

Rhythm offers grace of attitude, grace of movement, grace of utterance, graceful and expressive gesture, preparation for military drill, and, perhaps of more value than all others, the mental habit of obedience, the unquestioning and instantaneous submission to authority, acting as an instinct, not

in the drill only, but wherever legitimate authority is exercised, in the home, in the class-room, and community as well.

Habit comes only by repeated action; and the desiderata sought for, to secure right discipline of mind, are the conditions necessary to secure rhythmic action of the body, viz: those conditions that will secure repeated action for the end to be gained by that action, monotonous and uninteresting as that action in itself may be. The rational mind seeks ever in the results for a reason for its action. The brute animal may be driven along the same narrow path, around the same beaten track from day to day, with no sense of degradation and no mental pang, if only food be supplied at proper times in proper quantities; but not so with the animal man. This instinct of nature must not be antagonized, and only in the field of art can we now find the desideratum sought.

The requirements of art culture, especially musical rhythm, are absolute and imperious, as are the requirements of discipline the most rigid. Body and mind, muscle and faculty, by it are trained to instant and unquestioning obedience, and the obedience is always voluntary, because the command is always reasonable and the authority always legitimate.

More of rhythmic art in the home, more of rhythmic art in the school, more of rhythmic art in the college, and there will be more of moral rectitude, as well as bodily grace in the individual lives of those whose aggregate constitute the communities and the nation.

EDUCATIONAL PROGRESS IN KANSAS.

BY PROF. D. E. LANTZ.

THERE are many signs of educational progress in our State. Persons outside the profession of teaching have been somewhat slow in recognizing the recent advance in education, but there are now signs that the press and the public in general are awake to the improved condition of our schools. Everywhere there are reports of greater regularity of attendance upon the schools. The attendance of teachers at the recent State Association, and at the district meetings in November, was greater than ever before in the history of the State. Nearly every County in the State has a teachers' organization with frequent meetings, in which live public questions and the routine work of the school-room are discussed with an appreciation of opportunity not observed in the past. These meetings are, so far as the writer has knowledge, well attended. The County Normal Institutes last summer had, without exception, larger enrollments than ever before in their history.

These are some of the signs of progress; but there is another basis upon which the work of the schools can be judged independently of this activity on the part of the teachers. The students applying for admission into our State and other institutions are not only more numerous, showing the improvement of our people in material things, but they are coming with better preparation for their higher work. All this implies and proves that our schools are becoming better. It also implies a better appreciation of these schools on the part of the public. So encouraging is the outlook, educationally, that we can confidently expect some reforms in our school system in the near future. Such changes could not possibly be effected in the face of a flagging interest in public education. It is only when popular interest is great that legislators can be brought to consider seriously the matter of school reforms. Make the schools as effective as possible under present conditions, and improvements in these conditions will speedily follow. Much of the recent educational advancement in

Kansas is due to the growing efficiency of the school superintendence. With every successive biennial election, men and women of higher qualifications and more earnest purposes are being elected to fill the office of County Superintendent of Schools.

These men and women are devoting themselves to the work with a zeal and intelligence unequalled; and it is very seldom now-a-days that we hear complaints that the best men are thrust aside for political causes, while inferior men secure the nominations. Everywhere, almost, the opinion prevails that the best possible available talent should be secured for this important office. Hence, too, we find a growing tendency to keep tried men in this office from year to year. All this is right, but it should be followed by a law allowing the payment of better salaries. This would attract higher talent, and still more rapid progress would follow.

A NEW PUBLIC LIBRARY FOR CHICAGO.

BY PROF. D. E. LANTZ.

THE city of Chicago will soon have a nobler provision for the reading public than any other city in America. Its public library is already large, and not far behind that of Boston in the number of persons using it. The Newberry library of reference, recently opened in the North Division of the city, will, in a few years, become a most valuable help to scholars. Although now in temporary quarters, it is already proving the wisdom of its trustees in deciding to make it exclusively a library of reference.

But the city has recently received a greater gift than that given it by Mr. Newberry's bequest. The will of the late John Crerar, admitted to probate on November 14th last, has a clause which, it is supposed, will give a fund of two million and a half of dollars for founding a free public library in the South Division of the city. This magnificent bequest is accompanied by one remarkable condition, which shows how clearly Mr. Crerar was impressed with the importance of a clean literature for the young. I quote this clause from the will itself: "I desire that books and periodicals be selected with a view to create and sustain a healthy, moral, and Christian sentiment in the community, and that all nastiness and immorality be excluded. I do not mean by this that there shall be nothing but hymn-books and sermons, but I mean that dirty French novels and all skeptical trash and works of questionable moral tone shall never be found in this library."

This is a noble gift, and in the hands of the gentlemen named as trustees, it is safe to say that the wishes of the testator will be faithfully carried out. In the censorship of the books to be bought for this library, much will depend upon the librarian chosen to perform the work. He must be a man of wide experience, sound judgment, and a profound knowledge of the motives of human action.

THE GRASSES.

Dairying requires grasses, and to achieve the best results we must have a variety of them, and yet did you ever think that the knowledge possessed by the average man with respect to grasses is very limited? Men have been farming for years who know very little of grasses beyond timothy, red-top, and blue-grass, and they have become acquainted with blue-grass simply because it has come into their pastures without being introduced by them. In portions of the East there is no knowledge of anything but timothy and clover. In sections of the West, there is little known of clover. Now we know of no more important study for the man who intends to do the best that it is possible to do in the dairy than the study of grasses. It is possible that there may be vastly better grasses for certain farms than any that has been grown upon it.—*Western Rural and Stockman.*

FORECAST IN FARMING.

Keen, practical foresight is an important factor in every walk of business life, but for the farmer it is almost indispensable to any reasonable amount of success. Mechanical skill, once it has been fairly mastered, needs next to no thought to keep it up to the point of working efficiency. But farming, as it ought to be, not only requires careful thought, but a very great amount of forethought, to make it either pleasant or profitable. The thing that helps most to elevate farm work above the level of the merest drudgery is the amount of hearty and exhilarating mental effort that can be infused into it; that, combined with the sense of duty and the feeling of hope, will, under Providence, make life on the farm more really attractive than pursuits apparently much more pleasant and alluring. Of all forms of thought, forethought is the most inspiring, just as afterthought is generally the least pleasant. Of the various nationalities engaged in farming on this continent, I find the Germans and Scotch, in proportion to their numbers, most successful, and to that success their faculty of plodding, combined with calculating habits, have, I think, contributed the most. As a German friend of mine said lately, "A man must learn somedings effry day, if he wants to make money by farming." The skilled propounds in the quiet of his spare hours the problems of the coming year with which he may need to grapple, and then sets himself to think out, in perhaps two or three different lines, the tactics by which those problems are to be solved, and those difficulties met. "Wise behind the hand," ready for business the day after the fair, the man with a dull, soapy sort of brain goes ahead in a mechanical sort of a way, seeing nothing in particular until he strikes a snag or runs his head against a wall, and then feels around in a dazed sort of way to find out what has struck him. Proper forecast in farming goes a long way beyond the mere study of possible modes of action. Every possible form of obstruction is looked at, and plans made for getting round the corner, or, if that is impossible, for making the unpleasant effects of the collision as slight as possible. The results may be much more valuable and enduring than the thinker himself has ever anticipated. When, more than fifty years ago, Amos Cruickshanks began with his one Durham heifer to try and build his ideal Shorthorn, he only meant to do the best he could with the materials within his reach. But he lived to see the triumph of his plans, and the profit and honor which followed. All the world now believes in the Scotch Shorthorns, of which he has been, as far as man can be, the successful creator. "Learn to labor and to wait," is good sense and good poetry, but the biggest half of the profit of farming labor and much of its real pleasure must come out of the vigorous exercise of the worker's brain, of which skilled forecast is pretty much the masterpiece. It is one thing to wait on the chance that may turn up, quite another and a much nobler thing to wait in sure hope for the fruit of the trees that years and years ago you selected and planted in the confidence that, if not your hand, some other one would be sure to pluck goodly fruit.—*Richard Waugh, in American Agriculturist.*

THE HIGHEST OF ALL ENJOYMENT.

One of the highest and best enjoyments comes through what is done for others. This is believed in theoretically, but seldom practically. If a man has money, he imagines that the way to enjoy it is either to keep and accumulate it, or to spend it on personal gratification; yet he misses the very finest of its delights when he refuses to share it or its benefits with others. So with our time, our talents, and our thoughts—kept to ourselves, or used for our own delectation, they do not give us a tithe of the real enjoyment that they afford when we use them liberally for the benefit of the family, or friends, or the community. No one who has once tasted the sweets of ministering successfully to the happiness of others will ever again relapse into a purely selfish use of his advantages.—*New York Ledger.*

A practical farmer who has tested it thoroughly says that seven pounds of dry corn fodder is equal to eighteen pounds of hay. Two and a half tons of such fodder is only an average yield per acre, making an acre of corn fodder worth as much for feeding as six tons of hay.

BLUE-GRASS.

The following eulogy clipped from the *Western Rural* is too good to lose, though true only in certain climates and seasons. In Kansas, the wise will test for themselves with caution:—

"We have recently been asked by a correspondent—to use his own words—'if blue-grass is good for anything.' Just listen to what a writer says in its favor, and though in some respects he may be a trifle extravagant, in the main all he says is true: '1. It improves with age, and never needs reseeding; a pasture fifty years old is in perfection. 2. It will do to pasture a full month earlier than clover, and about as much later in the fall, thus lengthening the grazing seasons. In favorable seasons, I have pastured eight consecutive months on it. 3. It makes the best winter pasture, and when allowed to grow up for this purpose the cattle will thrive on this whenever it is not covered with snow. 4. It is not injured by tramping as are other grasses, as it forms a very dense sward. 5. It is fattening and not washy in its early growth, and a bullock will fatten on it faster than on corn. 6. It grows well on rolling lands and thin soils, and is not injured by shade, and so produces profitable crops in timber plantations and on steep hill-sides sloping to the south, where any other grasses would be killed by the freezing and thawing of winter. 7. Drouth never kills it. No matter how thin the soil or how utterly burned by the drouth of summer, it starts into vigorous growth again with the first rain and soon clothes the fields with verdure. All other grasses and farm crops fail at times, but blue-grass never. In all localities where it flourishes it should find a place on every farm and on broken lands; if three-fourths of the farm were seeded down to it, it would be found profitable.'"

SUCCESS IN CREAMERIES.

Farmers must learn that the good and well-fed cow is the bed-rock of the successful creamery; and have lots of them, in close proximity to a good central point, before it is anything but a "delusion and a snare" to talk gorgeous creamery building and equipment to the dairy farmer. The disproportionately costly creamery may be the very thing to crush out the true interest of the dairy-man, instead of being a help to him. In a general way, we say to all farmers who think of engaging in co-operative dairying, and are visited by oily-tongued emissaries of scoundrelly manufacturers, who try to make them believe a \$6,000 or \$7,000 creamery is essential to a good start, that if they have any mangy curs, set them on such fellows; but never use a decent, respectable dog for such purposes.

There is not one place for a creamery or cheese factory in a hundred at which it is wise to invest more than \$1,000 to \$2,000, till after the cow-keeping end of the enterprise has scored an enlargement. Consult the documents and price-lists of such manufacturers of dairy tools as Cornish, Curtis, & Greene, and others of our advertisers, who we know will do the fair thing, and it will be seen that our advice is sound. Besides that, it is based on practical knowledge. We have no word to say against a factory growing to be a big thing—but let the growth of the cows, and the growth of the dairy-farmers in practical knowledge of their business, precede the gorgeous factory, that generally ends in being an "elephant." There are lots of folks, by courtesy called men, now loose, who ought to be in jail.—*Hoard's Dairyman.*

Farming, like every other business in these latter days of sharp competition, must be differently conducted from what it was in the days of our fathers. It requires more capital, more brains, and greater activity to insure success than formerly, and unless one has the two former, and is willing to be wide awake, he may better let not only farming alone, but every other business, and work for some one else who is properly furnished to conduct his affairs successfully. Such a one will soon bring up the value of any farm that he may acquire.—*The Congregationalist.*

When the energies pause, and the worker settles down, he may find comfort and ease, but the inspiration of the greater struggle is no longer with him; his real life is finished unless he takes into some other field that energy which has secured him success.

CALENDAR.

1889-90.
 Fall Term—September 12th to December 20th.
 Winter Term—January 7th to March 28th.
 Spring Term—March 31st to June 11th.
 June 11th, Commencement.
 1890-91.
 Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Assistant Breese was confined to his room one day this week by influenza.

J. E. Taylor serves in the dual capacity of College postmaster and mail carrier.

Prof. and Mrs. Hood are enjoying the visit of a friend, Miss Emma Hussey of Lynn, Mass.

Prof. Georgeson was in the clutches of la grippe on Friday, and was unable to meet his classes.

It is worth a visit to the greenhouse to see the two orchids—the “lady’s slipper” and the terrestrial—in bloom.

Fine coasting is to be had on the College hill, but the students do not avail themselves of it as they did two years ago.

Mr. Baxter defies the cold as he moves among his plants and flowers in the greenhouse, with the mercury ranging from 70° to 80°.

Several requests for teachers in the Government Schools for Indians have been made this week. Our graduates can do good work there.

It has been found necessary to postpone the Farmer’s Institute, advertised to be held at Girard on January 23rd and 24th, to the 13th and 14th of February.

Prof. Kellerman has the appointment of Botanist, and Prof. Walters, Chairman of the Committee on Landscape Gardening to the State Horticultural Society.

The ornamental banana tree is among the new things at the greenhouse. It bears no fruit, and its leaves are longer and more slender than those of the fruit-bearing variety.

The first lunch of the season was given by the cooking class yesterday. One hundred and eighteen persons tested the first week’s work of the twenty-five Second-year cooks.

The following members of the Faculty have been reappointed to positions on the State Board of Agriculture: Prof. Failyer, chemist; Prof. Popenoe, entomologist; Prof. Kellerman, botanist.

Mrs. Winchip has a class of post-graduate students in sewing on the afternoons of Monday and Friday. The same students spend two other afternoons of the week with Mrs. Kedzie in cooking.

Mrs. Kedzie’s cooking class served the first Faculty dinner of the term on Monday to the entire satisfaction of those who partook of it. These dinners and the Friday lunches will be continued throughout the term.

The College Literary Societies last week elected new officers for the Winter Term, with the following Presidents: Alpha Beta, Marie B. Senn; Webster, Geo. E. Stoker; Hamilton, S. VanBlarcom; Ionian, Julia Pearce.

The simple announcement that Noble L. Prentis will lecture at the College on Friday afternoon, January 24th, will insure enough of an attendance to test the seating capacity of the Chapel. Mr. Prentis’s subject will be “Stories and Story-Telling.”

The Farm Department has still a limited quantity of seed of forage plants, especially of the Kaffir corn, which we shall be glad to distribute in small quantities to persons in the State who may desire to try their culture. The Kaffir corn resists drouth well, and is therefore particularly adapted to the western part of the State. The seed will be forwarded by express, the receiver to pay charges. Apply to the Professor of Agriculture.

The total enrollment to date is 427. The unusually large proportion of beginners make necessary three large divisions of both English and History classes. The beginners’ algebra class is the largest ever known, two large divisions being

necessary for its accommodation instead of one small division, as of old. This large class in algebra speaks whole volumes for the capabilities of the students comprising it.

Many students have been absent from one to four days this week on account of influenza. On Monday, the epidemic, cold weather, and snow drifts joined forces, and as a result not more than half of the students were present.

Declamations were delivered in Chapel yesterday afternoon by the sixth division of the Third-Year class, consisting of Misses Fannie Waugh, Maude Whitney, and Flora Wiest, and Messrs. E. C. Thayer, S. Van Blarcom, F. A. Waugh, R. D. Whaley, and Geo. W. Wildin.

The hum of the planer, the scream of the circular saw, the buzz of the friezer below stairs, the “click, click” of the cylinder and job presses upstairs, remind visitors that these are busy times in Mechanics’ Hall. The machinery is in operation each day for the accommodation of students.

A Farmer’s Institute will be held at Stockton on February 6th and 7th, in which the college will be represented as follows: Pres. Fairchild, “College Training in Agriculture;” Prof. Popenoe, “The War Upon Insects;” Prof. Georgeson, “Scientific Stock-feeding in the Light of Practical Farming.”

Seventy-five students have asked excuse for one or more days this week on account of la grippe or kindred diseases, and others are still out for the same cause. This disease seems to affect the higher classes most, fifteen of the twenty-five Fourth-years having yielded to its charms for one or more days. Is this because it hits the head first?

Thursday’s Manhattan Republic contains a long letter from Prof. Shelton, who writes from San Francisco under date of January 11th, the date, by the way, on which his ship, the Alameda, was to have sailed, but was delayed until the 14th. Barring slight delays occasioned by snow-storms, the journey from Manhattan to San Francisco was made without incident. The following paragraph, penned after a visit to the ship, will give the reader some idea of the disquietude which possessed the Professor as he contemplated the long voyage ahead of him: “On first entering our cabin my attention was arrested by a peculiar tin receptacle attached to the front rail of each bed. This vessel had a capacity for about three pints; it was neatly painted, had a cover, and could easily be moved back and forth along the bed-rail. At first the horrible significance of this peculiar piece of furniture did not strike me; but I soon found myself drawn to it by an irresistible fascination. I know not, dear reader, what the technical or, rather, nautical name of this bit of ship’s gear is,—whether it is a marline-spike, a jib-boom, or ‘three sheets in the wind and t’other flying,’—so I dub it here and now Neptune’s contribution box. Of this I feel certain, that long before this sees the Kansas sunlight I shall have demonstrated the usefulness of this bit of ship’s furniture by a most thorough and practical experiment.”

GRADUATES AND FORMER STUDENTS.

A. J. Avery, student last year, was a visitor yesterday.

W. S. Bradbury, student last year, is clerking in a bank at Clay Center.

Grant Gates, Second-year in 1886-87, is teaching at Gatesville, Clay County.

N. E. Lewis, ’89, writes from Evanston, Ill., that he has been sick for several weeks.

Ethlin M. Dunham, student last year, is teaching near Clay Center. She intends to return to College.

Chas. M. Collins, student in 1886-87, is pursuing special studies in natural history at Montrose, Colorado.

The following item, concerning a graduate of 1872, is taken from Prof. Shelton’s letter to the Manhattan Republic: “The day after our arrival here we were delighted by a call from our old-time friend and co-laborer in college work, Lieut. Todd, who, as many readers of the Republic will remember, is with his regiment, quartered at the Presidio, as the Government reservation located just above the city is called. This morning we returned the call, and had a most enjoyable visit with Lieutenant and Mrs. Todd in their pleasant home—a bower of fuchsias, geraniums, and other strange but equally beautiful plants in full bloom, out doors.”

COLLEGE SOCIETIES.

SOCIETY HALL, January 10th.

The Alpha Beta Society was called to order by the President. The audience was favored by an interesting piece of instrumental music by Miss Corlett with the harmonica and Miss Campbell with the organ; Maude Parker, committee. Roll-call. Debate, question, “Resolved, That poverty tends to develop a better character for man than riches.” Miss Hoop opened the affirmative by showing that the sterling characters of nearly all the great men of history have been formed through the influences of poverty. She admits that the rich have made more show in the world, but the “widow’s mite” or the last loaf divided with the humble wayfarer are evidences of character to which the rich have no claim. The rich man forsakes his home for the gambling-den or club-room, while the poor man usually finds his greatest pleasure by his fireside. Mr. Taylor opened the negative by showing the good business qualities and other characteristics developed in men through the influence of money-getting. He mentioned Robert Morris, Peter Cooper, John Jacob Astor, George Peabody, and James Smithson as wealthy men whose characters were the mainstays of their final philanthropic actions. Such men are a greater blessing to the world than it is possible for any poverty-stricken person to be. Mr. Thayer on the affirmative showed us how the Roman Empire degenerated as it grew rich. As proof that riches are not necessary attributes of a good character, he pointed out the examples of Lincoln, Grant, and Garfield. Mr. Pound on the negative showed that riches tend to give a person ambition and pride in family and self. He said that a hungry person is not apt to have an exceedingly amiable temper, or to ever exercise his mental faculties to the best advantage, therefore poverty does not conduce to the formation of the noblest character. The Judges, Misses Campbell and Greene and Mr. E. T. Martin, decided two to one in favor of the affirmative. Miss St. John presented the Gleaner, with the motto “Excelsior.” It was very good. Recess. Miss Parker then rendered an interesting and instructive song entitled, “The English Swell.” The Society now proceeded to the election of officers. There was little opposition except for the offices of Critic and Recording Secretary. All the other officers were elected by instructing the Secretary to cast the ballot of the Society in favor of the one candidate. The following is a list of the newly elected officers: Marie B. Senn, President; W. W. Hutto, Vice-President; Delpha Hoop, Recording Secretary; Sadie Moore, Corresponding Secretary; J. N. Harner, Treasurer; May Harmon, Critic; and P. E. Westgate, Marshal. Under miscellaneous business, a vote of thanks was extended to Messrs. House, Gundaker, Baxter, McCreary, and Prof. Hood and Mrs. Winchip for assistance rendered at our Annual Exhibition. Assignment of duties. Report of Critic. Reading of minutes. Congregational singing. Adjournment. G. L. C.

SOCIETY HALL, January 11th.

The Webster Society was called to order by President Martin, the house being well filled for the first night of the New Year. The next order was roll-call. J. Frost led in devotion. The minutes of the previous meeting were read and adopted. The question for debate was, “Resolved, That the World’s Fair should be in New York, and not in Chicago.” Argued on the affirmative by H. N. Whitford and D. C. McDowell, and on the negative by J. Davis and H. W. Avery. The affirmative maintained that the foreign nations would have easier access to New York than to Chicago and that it was the metropolis of the country. That its centralization, scenery, and accommodations were superior was also argued, and that 10,000,000 people could have access to the fair each day and be at home at night. The negative claimed that we should look to our own interests, as we would show the most products, and not to the other countries’ interests. The debate was good and exceedingly interesting. The question was decided by a vote of the Society in favor of the affirmative. Owing to the business of the evening, the order of declamation, composition, and reading were passed. The Society paper, the Reporter, was next presented by G. E. Stoker. It was exceptionally good, and showed very careful preparation by the editor. We quote the following sketch of an article from its columns: “The mighty political upheavals which have characterized the last century have been chiefly brought about by the industrial classes. The growth of society has been one of evolution. All that is best in our civilization has come from a germ found in the race at the time of the earliest records. Slow, indeed, has been the growth and not without sufficient cause, as can be readily understood. The cause has been almost wholly due to the fact that growth has been simultaneous in all directions. The great truth that humanity is one has been one of the most difficult to comprehend of any ever presented to the world. But, whether comprehended or not, men and nations have closed their eyes and refused to see it.” The name of M. W. McCrea was proposed for membership. The following officers were elected for the ensuing term: Pres., G. E. Stoker; Vice Pres., S. C. Harner; Recording Sec., H. W. Avery; Corresponding Sec., C. A. Campbell; Treasurer, J. W. Jams; Critic, W. T. Swingle; Marshal, B. H. Pugh. J. A. Davis was elected to fill the vacancy in the Board of Directors. The Society then adjourned. S. C. H.

HAMILTON HALL, January 11th.

The first meeting of the term was called to order by Pres. VanZile. M. G. Riddell led the Society in prayer. Election of officers next being in order, nominations for President were made. After a considerable amount of balloting, Sam’l L. VanBlarcom was elected. A. K. Midgley was elected by acclamation as Vice President. There were several nominations for Recording Secretary, but after the ballots were counted it was found that A. E. Martin received the office. For Corresponding Secretary, F. A. Waugh was elected. G. W. Wildin was elected Treasurer by unanimous vote of the Society. F. A. Campbell was elected Critic. R. W. Newman was unanimously elected Marshal. The Board of Directors made a favorable report on the name of Thomas Lyon. E. M. Blachley opened the programme of the evening by rendering a good declamation. “The Crime of Capital Punishment” was the subject of E. C. Coburn’s oration. Recess ten minutes. The debate, question, “Is a universal language desirable?” was next taken up. Mr. Blachley, Mr. Peterson, and Mr. Hartley were selected to act as Judges. In a few well-chosen words, Mr. Midgley illustrated the situation one was in when studying and traveling in a foreign country, and not being able to understand their language. A universal language would do away with the difficulty. G. V. Johnson stated that the language of a race or nation was one of their characteristics. Although the theory of a universal language might be very good, the practicability of such a scheme would be impossible. Frank Yeoman further argued the affirmative. F. A. Waugh spoke at some length on the question. He claimed that whenever universal language was desirable the people would have it. The Judges rendered their decision two to one for the negative. As the music committee was absent, that part of the programme was omitted. Discussions were next in order, and C. J. Peterson discussed, he “Influence of Invention on civilization.” Mr. Houser had for his discussion, “The Conquest of Mexico.” C. E. Yeoman was last on the programme, and gave a very interesting discourse on phrenology, making numerous illustrations, to more clearly explain his subject. Assignment of duties. Adjournment. C. E. COBURN.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers’ Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Nearly ten per cent of the Indians educated in eastern schools die after their return to their people. Education will in time solve the Indian problem.—*Hutchinson News*.

The value of the school buildings in Junction City is \$55,000, and we need several more rooms. Our school population is 1,100, and the current expenses are \$10,148.—*Junction City Union*.

The Reform School people at Topeka are building a large refrigerator to use in taking care of the meat consumed by that institution, as all meat used by State charitable institutions is now shipped from Kansas City.

The Lawrence *Journal* says: "University circles are stirred up over a point of etiquette. At a Faculty party, if the unmarried lady professors are to be ranked at the supper table according to age, is the *magister epilarum* to decide as to the ages?"

The teachers of Jackson County on their return from the Teachers' Convention at Topeka after the capture of the flag, were met at the depot in Holton by the Third Regiment Band and a large company of citizens. From the depot they were escorted to the court-house, where they were given a warm reception.

Mr. C. C. Hann of Topeka, one of the most promising young writers of the State, won the Hutchison *Clipper's* \$25 prize for a short story. His sketch was entitled "The Indestructible Manuscript," and was a story of ill luck brought about by the possession of one of Judas's thirty pieces of silver.—*Abilene Reflector*.

Mrs. Harriet Earhart Monroe, a teacher in the Atchison Institute, has written a book, "The Art and Science of Conversation." The volume is published by A. S. Barnes Co., and is said to be an admirable compendium of thoughtful talks and pertinent suggestions concerning conversation, and reading and teaching.

Arcadia will soon have a circulating library. This is what the *Democrat* says: "Mr. S. A. Smith has added a library to his barber business, and has arranged a plan of circulation by which readers may indulge themselves with works of the best and most popular authors at a trifling cost. Lovers of fiction should call and secure a book with which to beguile the long evenings now prevailing."

State Superintendent Winans of the Department of Instruction has appointed the following committee to prepare a course of study for the common schools of Kansas: Superintendent Geo. W. Kendrick, Eureka; Superintendent S. Harkins, Junction City; Superintendent J. R. Bickerdyke, Russell; Superintendent D. S. Price, Wichita; Superintendent Belle Spear, Atwood. A report of this committee is expected at the County Superintendents' Convention, which will meet in Hutchinson May next.

The flag for the school building has been ordered from Columbus, Ohio, and will be here in a week or two. It will be 12x18 feet in size, and will cost about \$20, including expressage. To support this large flag, the School Board will erect a pole in the school yard, instead of upon the building, as at first planned. On account of necessary delay in these arrangements, the exercises in connection with the formal hoisting of the flag will be postponed until Kansas Day, the 29th of January.—*Ellis Headlight*.

The Baker University *Index* does not seem to be scared over the establishing of a new Methodist University at Topeka. It says: "The revolution in Brazil is going to have about as much effect on this year's ice harvest as the proposed institution to be located at Topeka will have on Baker's success. There is a great deal being said about new movements, and Baker's friends are not objecting to what enthusiastic novelty-hunters may say. But he will make a serious mistake who thinks Baker has no friends, or that her friends are passive."

Miss Emma D. Aldrich, President of the Woman's Hesperian Library club of Cawker City, has given the State Historical Society a photograph of the Cawker City library building, with portraits of thirty-two members of the Club photographed in front of the building. The club consists of forty-two members who bought the lots, erected the building at a cost of \$1,500, planted trees and shrubbery around it, have collected a library of 1,000 volumes, possess a fine geological cabinet,

and hold meetings twice a month for literary work. *Topeka Capital*.

Many newspapers are criticizing the Board of Regents because they have elected no Chancellor for the State University. The fact is, that there is not a professor in the institution who would not make a good and efficient head for the University, and with such men in charge there seems to be no necessity for rushing things. The affairs there are moving along in a manner that is wholly satisfactory, and the Board of Regents know that the men who are doing the work can be trusted with the management of everything, hence they desire to take their time in selecting a Chancellor.—*Kansas City Globe*.

The Fourteenth Annual Meeting of the Kansas State Historical Society will be held in the Hall of the House of Representatives, at Topeka, on Tuesday evening, January 21st, for the election of one-third the members of the Board of Directors, and the transaction of such other business as may come before the meeting. Addresses will be delivered by Col. Wm. A. Phillips, President of the Society; Hon. Edward Russell, Rev. John G. Pratt, Hon. P. G. Lowe, and Hon. Benj. F. Simpson. A meeting of the Board of Directors will be held at three o'clock P. M. of same day, in the rooms of the Society. All members are requested to be present.

The new Washburn College chapel building is now nearly enclosed. The body of the wall is of grey native lime stone, trimmed with the finest quality of Bedford L. d., stone, and Carroll County, Mo., sandstone. On each side of the main entrance are columns of red granite from the quarries of St. George, Province of New Brunswick. The building is 98x112, three stories high. In the basement story will be five spacious recitation rooms. The main story furnishes four recitation rooms and a Y. M. C. A. room. The chapel in the upper story will seat about 700, and nearly 1,000 will find room on special occasions. The building will be completed by June 1st next, and will cost about \$35,000.—*Topeka Capital*.

Miss Sarah Brown of Lawrence has been appointed Matron of Haskell Indian School at Lawrence. Miss Brown is a daughter of the Rev. John S. Brown, who for more than a quarter of a century has been one of the leading Unitarian preachers in Kansas, identified always with the best thought and best work of the State. Miss Brown is also the sister of Ex-Congressman William Brown and a sister-in-law of State Senator F. E. Gillett. She has taught successfully for years, and has been Superintendent of Schools in Douglas County. She will also be remembered as the first woman candidate on the State ticket of Kansas, she having been a candidate for the office of Superintendent of Public Instruction on the Democratic State ticket in 1881.

A GOOD HOUSE-KEEPER.

My idea of good house-keeping is where a woman keeps her home sweet and orderly, provides simple, well-cooked food, makes her home so restful and cheerful that all who come into it shall be better for breathing the atmosphere of kindness and cheerfulness that pervades the place, and where the household machinery always runs smoothly because of the constant thoughtfulness of the mistress of the house. A place like this is truly a home, and a woman who makes such a home deserves the respect and admiration of everybody. I have seen such homes among the rich and among the poor, for neither wealth nor poverty prevents the right person from filling, with the atmosphere of comfort and happiness, the house of which she is the mistress.

The good house-keeper will certainly look well to the ways of her household; but her eyes will be those of the kind, just woman. She will not look miracles; she will not expect to get the best supplies and service when paying only the lowest price; she will not hope to make something out of nothing; she will be brave enough to live within her means, even if they be small; she will not be afraid to do her work honestly and well; and, finally, she will be so true to herself at all times, and so adjust and simplify her domestic duties, that she will not exhaust body and mind in trying to do two persons' work for the sake of "keeping up appearances." How many families lose all the comforts of home life in this senseless effort!—*Miss Parloa, in Good Housekeeping*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

MANHATTAN ADVERTISEMENTS.

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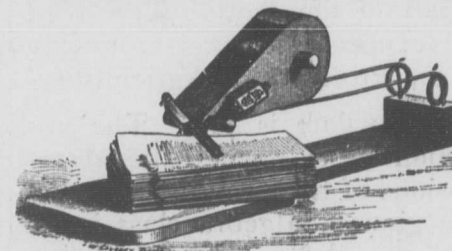
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MANHATTAN BANK.—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

WEAK YEAST.

BY MRS. NELLIE S. KEDZIE.

WHEN the good housemother depends in cold weather upon wet yeast for her bread, care must be taken that her yeast does not "run out." When the yeast is made and set to rise, it is difficult, in very cold weather, to find a place in the kitchen warm enough to keep the yeast plant growing until the mass is full of little plants ready to attack the flour when set in the bread. The workers in the kitchen are usually dressed more warmly in winter than in summer, and it is hard to know just the heat necessary for yeast without actually testing with a thermometer. Many times the yeast grows "weak" after a time, because each making of yeast is allowed to be put away before it is fully "alive" with the little plants.

Another source of much trouble is the presence of other organisms beside the yeast plant. When the air of the kitchen becomes heavy and close, when the windows are not open as often as we would all like to have them because of the outer cold, then it is that other growths find the potato and flour, with or without the hop water, a very comfortable place in which to take root and grow. The yeast may look very lively, may foam, and seem perfect yeast, and yet it may not have the right effect on the flour at all. Care is necessary to see that only yeast plants and not other forms of sporadic growth have possession. When the germs floating in the air drop into the yeast and crowd out the plant we want for our bread, we may have fermentation which is like salt-rising bread, or we may have one which will only cause the sponge to ferment in such a way as to soften the gluten. In this case, our bread cannot become light because the gluten walls are not tough enough to hold the gas until the bread goes into the oven.

Two precautions are necessary for making good yeast, especially in winter: plenty of heat—anywhere from 80° to 90°—to develop all the yeast plants possible in the liquid, and close covering of the yeast to keep out foreign plants. It is well in winter to use much more yeast than in summer. Twice as much wet yeast as is needed in warm weather will only make the bread come up faster, and will give quite as good results in much less time.

CARE OF THE HEALTH.

BY MRS. NELLIE S. KEDZIE.

THERE are no statistics to be used in proof, but it certainly looks as though the delicate women of uncertain health are quite as likely to live long lives as those of robust health. There is a sufficient reason for this in the care of self which the delicate woman finds absolutely necessary in order to keep about at all. Too many times the strong woman feels herself able to undertake any and every task set before her; and, if her strength threatens to give out, she draws on will power, and trusts that past perfect health and future rest may make up for overtaxed nerves and muscles.

The woman whose health is not always to be trusted learns to give up and rest when she begins to tire; learns that she can't do all the work she would like to do, and her friends learn to help her to call a halt before she is in danger of breaking down. The consequences of the two modes of action are very frequently seen in the families of many of our friends. The strong sister carries all the heavy work, shielding the weak one, and by and by we exclaim, "Who would have thought she would live longest? She never had good health, while the one who is gone was always well!"

The woman who must care for herself in every way possible learns her lesson early, while she

who has strength to spare will not learn until often it is too late. If all young people could be made to feel that it is a sin to overtax themselves; that it is more wrong to abuse their own strength than to overdrive their horses; that they have no more right to waste strength of mind or body than they have to waste money; that they are as responsible all through their lives for the use and care of their strength as they are of their property, we should find fewer broken-down middle-aged people; fewer irritable invalids, and many more strong elderly people. Care of self is a hard lesson. Its importance is very great and its value is inestimable. Women especially need precept upon precept in that direction, and the lesson needs to be taught over and over again. None of us are careful enough of our own selves; and instead of its being selfish to care for self, it should be called generous, because we belong to those about us; and the more health and strength an individual brings to his work, the more he can do for the world where he labors. Constant care of health is one of the duties of life.

ROCKETS.

BY LIEUT. J. F. MORRISON.

THE rocket, so familiar to all as one of the many means of showing our patriotism on the Fourth of July, was an old weapon of war when this country celebrated her first anniversary. It was first used by the Chinese for war purposes, and most writers fix the date of its invention at about the close of the Ninth Century. As it was originally made, it was too feeble and inaccurate to be much used, except for incendiary purposes. The early rockets were much the same as are those used in pyrotechnic displays; and the improvements in those used for war purposes are in better manufacture and arrangements for guiding them in their flight.

The essential parts of the rocket are a tube closed at one end,—and nearly so at the other,—filled with a burning composition, and fitted with a head, and some contrivance for keeping it from changing its course. The composition used must be something that does not burn too fast, and will give large quantities of gas. That usually used is composed of nitre, sulphur, and charcoal in slightly different proportions than in gun-powder, and differently prepared. To make the rocket, a tube closed at one end is filled with the composition, which is driven in or subjected to heavy pressure. In order to afford a larger burning surface at first ignition, a core is inserted before filling and afterward withdrawn, or the case is filled and then a hole bored in the center. The mouth of the rocket is then closed, except for one or more small vents, and some kind of guiding arrangement attached. A head, depending on the use to which the rocket is to be put, is then fastened to the other end. On igniting the composition, large quantities of gas are formed, which, escaping from the small vents under high pressure, give the rocket its motion. In those used for display, the case is made of paper, and the burning composition usually has fine particles of steel or iron to produce bright sparks in its flight. At the head is a small case filled with "stars," so arranged that when the composition is burned it will ignite a small bursting charge which will ignite and scatter these. Rockets like the above are often used for signal purposes.

The cases of rockets used for war were at first made of paper, and were guided by a stick attached, as are those of the common sky-rocket. In 1804, Sir William Congreve improved them. He made the cases of sheet-iron, which enabled him to use a more powerful composition, and fastened the

guide-stick to the center of the base instead of on the side, placing the vents around it. He thus increased the range from 600 to 2000 yards, and very materially increased their accuracy. These rockets were afterwards successfully used at the battle of Leipsic and other places on the continent.

Another improvement has been made by so arranging the vents as to give the rocket a rotary motion around its longer axis,—as in a rifle ball,—and dispensing with the guide stick.

The head in these rockets is similar to the projectiles fired from guns. A fuse from a shell, extending into the case, would be lighted when the composition had burned to that point, and the shell exploded. For incendiary purposes the shell would be filled with some "burning composition." While it has been known and used for a long time, therock et has never had an extensive use as an engine of war. At present their range and accuracy are too far below that of modern artillery to allow of their extensive use; but their development is one of the possibilities of the future. They are now used at some life-saving stations for throwing lines to disabled vessels.

THE RAIN-FALL FOR THIRTY YEARS.

BY ASSISTANT C. M. BREESE.

UPON the annual rain-fall of a country, and its distribution, as much as upon any one thing, depends the success of agricultural pursuits. The rain-fall is often of a local character, so that the measured rain-fall at any one place will hold good for but a limited territory. I have considered that the rain-fall at Manhattan might be regarded as the approximate rain-fall of Riley County. Thinking a comparison of the rain-fall by months, and of the crops raised, might be of interest, I have prepared the following tables, getting the data for crops from the crop reports of Riley County as printed in the Biennial Reports of the State Board of Agriculture. The data for the rain-fall is from the College records;—

TABLE OF RAIN-FALL.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total each year.
1850	1.50	.66	2.88	2.54	9.42	3.57	4.90	6.84	1.82	.64	1.20	.20	36.17
1860	.60	1.54	.00	1.12	1.13	3.09	2.09	3.00	1.35	.44	1.53	.50	15.32
1861	1.35	.00	2.00	3.76	8.23	6.08	6.08	1.39	8.00	2.02	.70	1.00	34.59
1862	1.50	.12	.00	3.63	3.18	1.37	3.83	2.85	4.15	1.62	1.70	2.25	26.20
1863	.66	2.30	.00	9.12	3.13	5.08	4.53	6.21	.73	2.40	2.23	2.17	39.43
1864	.44	1.10	2.12	1.68	2.20	5.06	3.02	1.84	2.30	.68	1.61	1.11	20.25
1865	.33	2.21	2.27	2.03	2.04	7.98	6.42	5.04	.00	.00	.00	.00	28.32
1866	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
1867	.05	2.01	.63	2.44	3.59	5.66	5.42	.70	3.50	.91	.49	.51	26.50
1868	.30	.18	.93	1.90	1.58	4.31	6.70	5.94	5.72	.51	2.17	.81	30.28
1869	.15	1.17	1.06	2.20	1.12	2.66	6.27	2.43	1.83	.43	1.19	.52	25.22
1870	.05	.00	1.45	.50	.01	.79	2.98	5.21	4.57	5.06	.13	.45	22.10
1871	.53	2.48	1.02	3.06	5.07	2.05	6.03	4.25	1.92	1.20	1.96	.35	28.86
1872	.13	.48	.92	2.06	6.81	1.73	6.02	5.32	5.70	2.76	.00	.95	35.78
1873	.84	.30	.71	1.07	8.54	7.79	2.81	1.04	1.85	.42	.82	1.67	29.08
1874	.50	.20	.37	1.40	2.98	4.31	.18	.25	4.53	.22	1.12	.67	17.73
1875	.22	.87	1.11	1.60	2.46	2.66	3.23	1.40	2.85	1.04	.34	.78	17.96
1876	.05	.36	.96	.72	5.73	4.60	5.65	10.70	3.11	1.01	1.75	.50	45.78
1877	.46	.91	2.70	4.08	7.90	6.76	4.16	2.78	1.52	0.97	1.90	.55	43.79
1878	2.35	1.44	1.77	2.02	4.04	5.02	12.71	2.60	3.22	1.06	1.90	.91	39.10
1879	.75	.00	.00	3.21	1.79	8.48	4.91	1.61	4.30	2.63	7.83	.62	36.13
1880	.56	.05	.50	1.08	3.74	3.92	3.78	8.51	2.52	2.20	1.07	.28	29.11
1881	.50	2.75	.75	1.50	6.07	3.36	1.32	.43	4.92	4.27	1.86	.53	28.94
1882	.42	.42	.80	3.47	5.43	3.08	7.73	.87	1.20	3.54	.95	.44	28.35
1883	.25	1.75	1.05	2.36	4.83	9.58	4.15	3.94	3.33	2.22	1.07	.33	33.62
1884	.30	.58	2.36	3.23	4.63	3.82	4.99	.80	4.39	1.72	1.19	1.09	24.90
1885	1.08	.55	.00	4.03	4.30	1.67	2.84	2.06	1.14	2.42	1.24	1.53	28.85
1886	.71	.25	1.55	4.76	4.87	5.43	4.90	6.66	6.88	2.20	.20	.80	29.88
1887	.68	1.15	.42	2.85	2.54	4.51	.90	4.46	2.86	2.74	.94	1.22	31.29
1888	.65	2.67	2.48	1.38	2.25	5.23	4.41	2.48	1.92	1.42	2.23	.02	30.87
1889	.78	.54	.89	1.74	6.15	3.56	8.14	.00	.00	.00	.00	.00	.00
M'n	.67	1.01	1.19	2.71	4.06	4.56	4.67	3.51	3.32	2.23	1.47	.87	30.27

TABLE SHOWING ESTIMATED YIELD PER ACRE.

YEAR.	Wheat, bus.	Corn, bus.	Oats, bus.	Potatoes, bus.	YEAR.	Wheat, bus.	Corn, bus.	Oats, bus.	Potatoes, bus.
1872	14	38	25	68	1881	9	17	37	14
1873	15	45	33	132	1882	22	50	45	80
1874	11	2	16	5	1883	19	40	50	80
1875	14	41	28	90	1884	23	47	41	110
1876	13	40	30	100	1885	12	30	40	100
1877	15	45	30	52	1886	16	25	35	75
1878	16	42	48	67	1887	8	12	30	80
1879	11	45	35	50	1888	19	29	36	20
1880	11	32	24	73	1889	22	50	41	.00

If the question, How does the total rain-fall of the year 1889 compare with that of 1887 and 1888? were to be asked the residents of this county, I believe nine out of ten would answer without hesitation that it was much greater; while the fact, ascertained by careful measurement, is that it was a trifle less than 1888, and only one inch

more than 1887. How, then, are we to account for the unequal crops of the three years? I think the true answer is to be found, as it is in most other cases on the record, in the difference in the distribution of the rain. Let us briefly review the seasons, giving most attention to their effects on the corn crop, since it is the chief crop of the county, and the one most affected by the summer rain-fall.

1872—There was a very light rain-fall during the winter which probably cut the wheat short somewhat. The spring opened very favorably for corn, but the light rain-fall in June cut short what would otherwise have been a heavy crop. 1873. A light rain-fall during the winter months, but with May came copious rains, which fell frequently until July, and even then came often enough to insure a good corn crop. 1874—A glance at the limited rain-fall of July and earlier tells the history of this year. Then, in addition, this was the year the grasshoppers were so destructive. 1875—No moisture seems to have been wasted during this year. The rain-fall was scanty. There was not a single month in which it was up to the average, but it was well distributed and very good crops resulted. 1876—Following the dry summer of 1875, came a wet one in 1876—too wet, as it interfered considerably with proper culture. There was no suffering for want of moisture this year, and crops were good. The years of 1877, '78, and '79 were much like 1876, but with constantly decreasing but well distributed supply of rain, the crops of the entire series being exceptionally good. 1880. Crops but fair. Rain-fall little below the average, but well distributed. 1881—The drouth in July cut the corn crop very short. 1882—A rain-fall two inches below the average, but an excellent distribution. 1883 and 1884 were prosperous years. 1885—A light rain-fall in June cut the corn short. From the latter part of May to June 19th there was no rain. 1886—The drouth from June 25th to July 19th—the most critical period—cut the corn short again. 1887—A light rain-fall in the spring, drouth in July, and the destructive presence of chinch-bugs account for poor crops. 1888—The distribution would appear from the table to have been a good one, but the July rain-fall was mostly one rain, on the 15th. Both before and after that, there was a scarcity which did much damage. 1889. A first-rate distribution of the rain-fall and a favorable season for all crops, excepting oats, perhaps. Heavy rains caught a great many oats in the shock. Then the smut attacked a good many fields. This makes the oats marketed in Manhattan at present of an inferior quality.

A WORD TO THE GIRLS.

When your brother is asked what vocation he intends to follow, he says that he hopes to be a doctor, a minister, a merchant, or a mechanic. He is qualifying himself for some special work in life, and studying with a certain end in view. But when some one asks you what you intend to become, you are not able to answer. The question is a new one. Perhaps it had never occurred to you that you should choose and prepare for a certain work. But why not? Why should not you, as well as your brother, be ready to meet the future? We believe that every girl should be taught some honorable means of self-support, as religiously as she should be taught to love her God. It makes no difference what her social position is now, whether she be the child of luxury and ease, or the child of humble poverty, she should learn a trade, a profession, a remunerative business, to which she could turn if required so to do. She should learn some one thing so well that people would be willing to pay her for doing it. Let it be speaking French, or making bread, if she be competent and can show herself to be, the world will receive her when she knocks for admission. The idea is, not that she should master any great thing, but that she should excel in some one thing. All honor to those who aspire to and work for high positions in literature and art; but in choosing a business with a view to remuneration, it might be well to remember that the world can live without French and music, but it must have bread.

KANSAS THRIFT.

The Galva Creamery Company made 87,639 pounds of butter during the year 1889.

Kensington has secured a steam grist mill, the citizens donating the site and \$1,500 in money.

A company of Topeka citizens have filed a charter for another electric railway, light, and power company.

The Secretary of the State Board of Agriculture states that the coming wheat crop has not been injured by freezing.

Topeka, Atchison, Kansas City, Salina, Winfield, Wellington, Hutchinson, Newton, Emporia, and Arkansas City are asking for Government buildings.

It is estimated that there are over two hundred car loads of corn waiting transportation on the North Solomon Branch, and over one hundred and twenty-five car loads on the South Branch.

A vein of genuine marble of excellent quality has been found near Iola. It is a beautiful stone, and has every appearance of possessing great durability. It also takes a beautiful polish. It is said to equal the best grades of Italian or Vermont. The vein is nearly thirty feet thick.

A farmer living in the southern part of Douglas County has discovered a vein of marble and granite about thirty feet in thickness and about twenty five feet below the surface. Successive strata develop different colors, beginning with a mottled gray and running through bluish, pink, blue, red, and clear white.

The St. Louis *Milling Journal*, under the head "Hurrah for Kansas," writes an article on the superior prices and demand for our flour in Liverpool over Minneapolis flour, which takes second place. The demand for the Kansas article is quoted "good," while Minneapolis flour is placed at "fair," with a difference of seven cents in favor of the Kansas product.

The biggest thing in Kansas at the present, says the *Atchison Globe*, is the terra cotta street curbing invented by Gov. Smith, of the Soldier's Home at Leavenworth. It is cheaper than stone, very much handsomer, and probably as good. It is in practical use at the Home, and heavy wagons back against it without chipping. Gov. Smith is the inventor of the curbing, and he has a better thing than a prospect for the United States Senatorship.

The Hutchinson papers are telling about a bet made in New York, that a certain number of corn stalks, twelve feet high, could not be found in Kansas. A Hutchinson real estate man was asked by one party to the bet to furnish the evidence. He has gathered together more than enough to comply with the terms, and every stalk is larger than required. One of the stalks is eighteen feet high, a number of them sixteen feet high, and on these it is nine feet to the ears of corn. He has made a box 18 feet long to ship the samples in. They were all gathered in Reno County.

The editor of the *Kinsley Banner-Graphic* thinks that alfalfa and hogs are more profitable than anything else the farmer of Southwestern Kansas can grow. Alfalfa has never failed to produce two crops of hay and one of seed in the driest portion of Southwest Kansas. The seed yields about eight bushels per acre, and sells readily upon all markets at the remarkably high price of \$4 per bushel. Every one knows that raising hogs for market is similar to coining money in a mint. All the necessities for fattening and preparing them for market are reasonably cheap, and surely our stockmen and farmers wish to embark in no better business than hog-raising.

The Board of County Commissioners of Finney County, some six years ago, rented and put in good order a large house, to be used as a county infirmary and poor house, for the care of the county poor. Up to January 8th, 1890, not a single application has been made for admittance to this home. The *Imprint* challenges any other county in the State or any county in any State of the Union, with a population equal to that of Finney County to make as good a showing as this. It says: "We in Western Kansas have been the recipients of a large share of your sympathy. But it most generally comes in the shape of abuse. Now give us the benefit of a notice of the above statement, which will, in some measure, however small, atone for the many grievous wrongs you have willfully committed against this country and people."

CALENDAR.

1889-90.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

The Cooking Class fed 134 people at the lunch tables yesterday.

Mr. A. A. Cottrell of Wabaunsee spent a day this week at College.

Prof. Walters enjoyed a visit on Wednesday from his parents of Riley.

Prof. Brown has yielded to la grippe for the past two days, being obliged to give up duties at the College.

A multitude of friends and neighbors gathered to the lecture of Noble Prentiss yesterday, so as nearly to fill the Chapel.

The Hamiltons already arouse the echoes of the Chapel by afternoon rehearsals for their annual exhibition on February first.

The annual report of the Experiment Station is in process of preparation, and will be ready for the printer by February first.

Pres. Fairchild, Prof. Popenoe, and Secretary Graham were elected members of the State Historical Society at the recent annual meeting.

Prof. Georgeson went to Topeka yesterday to purchase furniture for his house, which he hopes to occupy sometime during the coming week.

A Farmers' Institute at Edgerton, Johnson County, next week, has secured the aid of Pres. Fairchild for a day, although this is not in the list of College Institutes this year.

The new chairs for the Department of Household Economy, announced some weeks since, materialized yesterday, and are highly appreciated after the old split-bottoms that have for so many years done duty.

Professors Popenoe and Hood and Mrs. Kedzie represent the College in the Farmers' Institute at Mankato, next week. Jewell County has many energetic farmers and many friends of the College. The Institute ought to be a good one.

Foreman House has been kept from his classes in shop work for the past three days by a severe attack of influenza. Prof. Hood has been obliged to detail students to manage the work during hours in which he hears classes in Mechanics.

Professor Kellerman, while looking over the ears of corn he has obtained by crossing varieties, found a monstrosity in the shape of a double grain, resulting apparently from the fusion of two normal grains which were adjacent and in the same row. One germ was on the side toward the tip of the ear,—which is the invariable case in normal grains,—and the other was on the side toward the base of the ear.

Secretary Graham lectures this evening before the teachers at Riley on that always interesting and popular subject, electricity,—the title of the lecture being "Electricity as an Educator." The discoveries of Thales, Gilbert, Franklin, Volta, Oersted, Sturgeon, Arago, Faraday, and others are illustrated as showing stepping stones in progress toward the wonderful advancement made since 1825 by later workers in this field. The electric motor and much other apparatus is used in illustrating the modern uses of electricity.

The lecture of yesterday was given by Mr. Noble Prentiss, acting as proxy for Lieut. Morrison. Though only a proxy, Mr. Prentiss was quite himself in a masterly treatment of his subject, "Stories and Story-telling." Defining the story in various forms as anecdote or narrative, and distinguishing with admirable terseness and humor the true from the false story-teller, he kept the audience of six hundred students and friends in appreciative mood throughout the lecture, ready to respond with the broadest of smiles out loud to the multitude of good hits and happy expressions. The lecture closed with a tribute to the born story-teller, whose mission began in the gloomy days that followed the

expulsion from Eden, and will end only when humanity ceases to be human.

A letter from Prof. Shelton announces the steamer ready to sail from San Francisco on Tuesday, January 14th. Friends may be glad to know that mails for Queensland leave San Francisco Saturday, February 8th, and every fourth Saturday thereafter during the year. Postage is twelve cents per half ounce for letters, and two cents per copy for newspapers.

The following volumes have been added to the Library during the week ending January 25th, 1890: Proceedings of the United States National Museum, volumes 10 and 11; Bulletins of United States National Museum,—No. 33, Catalogue of Minerals, Egleston; No. 44, Batrachia of North America, E. D. Cope; No. 35, Transformations of North American Lepidoptera, H. Edwards; No. 36, Delphinidae, F. W. True; No. 37, Marine Mollusks, etc., of the Southeast Coast of the United States, W. H. Hall; The Kansas Crusade, Eli Thayer; Preventive Medicine, B. W. Richardson; The Health of Nations, two volumes, B. W. Richardson; Learning to Draw, Violet Le Duc; Tactical Deductions from the War of 1870-1, Translated by Col. L. Graham; Silos, Ensilage, and Silage, Manly Miles; North American Review, volume 65; Eclectic Magazine, volumes 2, 3, and 7; Thought and Thrift, Joshua Hill (from the author); Report of Commissioner of Education, 1887-8; Public Documents, twenty-three volumes.

GRADUATES AND FORMER STUDENTS.

George Adgate, Second year in 1887-8, is a book-keeper in New York City.

O. G. Palmer, '86, Principal of the Alton Schools, writes of a successful year in his work.

J. H. Criswell, '89, was a caller yesterday. He will spend this year on the home farm near Manhattan.

Geo. E. Rose, Third-year in 1880, is Secretary of the Missouri Valley Horticultural Society, with headquarters at Rosedale, Kansas.

J. F. Kerr, Second-year in 1886-87, is station agent for the Rock Island Railway Company at Hutchinson, and writes that he is prospering.

E. H. Snyder, '88, has an excellent article in the *Colorado Farmer* of December 26th upon "Material Education and National Improvement."

F. W. Adgate, student in 1886-88, is engaged as superintendent in building a dock at Port Henry, New York, with headquarters at Keeseville.

W. H. Olin, '89, Principal, had to dismiss the Wabaunsee schools this week on account of the inroad of influenza. He hopes, however to yet be able to properly celebrate Kansas Day, on Wednesday next, for which he has prepared an interesting programme.

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Webster Society.—President, G. E. Stoker; Vice-President, S. C. Harner; Recording Secretary, H. W. Avery; Corresponding Secretary, C. A. Campbell; Treasurer, J. W. Ijams; Critic, W. T. Swingle; Marshal, B. H. Pugh. Board of Directors—G. E. Stoker, J. A. Davis, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at half-past seven o'clock.

Alpha Beta Society.—President, Marie B. Senn; Vice-President, W. W. Hutto; Recording Secretary, Delpha Hoop; Corresponding Secretary, Sadie Moore; Treasurer, J. N. Harner; Marshal, P. E. Westgate; Director, V. O. Armour; Critic, May Harman. Meets Friday afternoon at three o'clock.

Hamilton Society.—President, S. VanBlarcom; Vice-President, A. K. Midgley; Recording Secretary, A. E. Martin; Corresponding Secretary, F. A. Waugh; Treasurer, G. W. Wildin; Critic, F. A. Waugh; Marshal, R. W. Newman. Board of Directors—A. F. Cranston, F. A. Waugh, F. A. Campbell, U. G. Balderston, C. P. Hartley. Meets Saturday evening at half-past seven o'clock.

Ionian Society.—President, Julia Pearce; Vice-President, Doris Kinney; Recording Secretary, Lottie Short; Corresponding Secretary, Maude Whitney; Treasurer, Myrtle Harrington; Marshal, Kate Pierce; Critic, Fanny Waugh. Board of Directors—Effie Gilstrap, Phoebe Turner, and Alice Vail. Meets Friday afternoon at 3 o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

SOCIETY HALL, January 17th.
The Alpha Beta Society was called to order by President Secret. The first on the programme was a beautiful solo entitled, "Tis Dividing the World," by W. W. Hutto, E. P. Smith, Committee. Victor Armour led in devotion. Roll-call. The following officers were then installed: President, Mary Senn; Vice-President, W. W. Hutto; Corresponding Secretary, Sadie Moore; Treasurer, J. N. Harner; Critic, May Harman; Marshal, P. E. Westgate. Miss Secret then delivered her valedictory, reviewing briefly the work of the term, at the close of which she gracefully yielded the chair to Miss Senn. In answer to the call for an inaugural, Miss Senn thanked the Society for the honor they had conferred upon her in unanimously electing her to the highest office in the Society, promising to make her work the best within her power, and asking the Society to assist in making the term successful. Next was a very humorous declamation by May Harman, which was rendered in a manner to make her audience forget that there ever was such a thing as la grippe, or anything else but humor in the world. Mr. Reed was next called upon for an oration, and responded by presenting "An opinion of Jeff. Davis." He represented Davis as a man whose love for his people surpassed his love of

country, and in his efforts to support them he surrendered his loyalty—he lost all—and became a martyr to the cause. That as a faithful soldier in the Mexican War and also in the regular army, some praise should be given him despite his mistaken policy on the slavery question. Although we may not all be able to think kindly of Davis, let us "Let the dead past bury its dead."

Next was debate. Question, "Resolved, that the uneducated man makes the most successful farmer." Judges appointed were Messrs. Stoker, Dobbs, and S. C. Harner. Debate was opened on the affirmative by G. L. Clothier, negative Sadie Moore, followed by Elizabeth Hoyt on affirmative and E. E. Ensign on negative. Judges decided in favor of negative.

The *Gleaner* was next presented by B. H. Pound. It was a very neat number, ably edited, and read in a very entertaining manner. Motto, "While we live, let us live." Next was recess.

After recess, Messrs. Hutto, Westgate, and Smith rendered a Donkey Chorus, Mr. Smith furnishing the donkey's part in the music. It was heartily applauded. Extemporaneous speaking was the next order, most of the members responding. The subjects, Resubmission, Jeff. Davis, Modes of Capital Punishment, and Debate between Gladstone and Blaine received special notice. Next was Report of Committees. The report on "News Reporter" for the Society was received and the news of the week will hereafter be presented in brief form by a member appointed for that purpose. The names of Jessie Sterns, Maggie Stewart, S. O. Huffman, and W. E. Zirkle were proposed. Assignment to duty. Adjournment. S. M.

IONIAN HALL, January 17th.

The Ionians were called to order as soon as possible after the Chapel exercises, with President Waugh in the chair. The Society sang in a spirited way the opening hymn. This was followed by repeating the Lord's Prayer. Roll-call showed that most of the members were present. The new officers were then installed. The first on the programme was an instrumental solo by Eusebia Mudge, followed by a declamation by Dora Skinner. The *Oracle* was presented by Phoebe Turner, and contained many interesting articles. Fannie Waugh favored the Society with a piccolo solo. All then listened attentively to the Debate, question, "Resolved, That the President of the United States should be elected for ten years instead of four." Argued on the affirmative by Miss Pender and Kate Pierce; on the negative by Hattie McConnell and Fannie Kunkle. The affirmative considered the expense of election, and the negative were afraid of getting a President that would fail to do his duty during the latter years of his term, so preferred rather to elect him for four years than to re-elect him. The Judges, Messrs. Harrington, Harmon, and Shaffer, decided two to one in favor of the affirmative. A vocal solo by Doris Kinney closed the programme. Favorable reports of the committees were listened to. Assignments were read for two weeks ahead. After the reading of the minutes, the members answered to their names with instructive quotations, after which the Society adjourned. The Society meets every Friday afternoon immediately after chapel exercises. All ladies invited to attend. M. E. W.

HAMILTON HALL, January 18th.

As soon as the opening formalities were over, the marshal pro tem, U. G. Balderston, conducted the officers elected for the term forward and administered the official obligation. All officers were present. Pres. VanBlarcom took the chair. Ex-President Van Zile gave a short valedictory and Pres. VanBlarcom followed with an equally short inaugural address. The programme of the evening was then taken up. I. B. Parker's declamation was about Socrates and Yantippe Snooks. T. D. Hogbin read an essay on "Duty." He said that duty was like greatness: some are born to duties, some have duties thrust upon them, some achieve duties, and some never have any duties. G. J. Van Zile, A. K. Midgley, and E. M. Blachly were chosen as Judges in the debate on the question, "Is a man justified in obeying a law of his country which he feels to be morally wrong?" A. D. Rice led on the affirmative, and J. W. Mills on the negative. A. C. Newberger was the second on the affirmative. He read several extracts from eminent lawyers and political economists. Percy Leland, on the negative, stated that laws were sometimes made for the benefit of the makers alone. This is especially true in monarchies, where the laws do not represent the will of the majority. The history of England was cited in illustration. All national revolutions come from rebellion against the laws of the land. The American Revolution was brought about by the disobedience to England's unjust laws. A. D. Rice closed the affirmative, and J. W. Mills, the negative. The last speaker quoted a good deal of scripture, but it didn't seem to have much effect on the Judges, for they decided unanimously in favor of the affirmative. J. C. Jones read an essay about hunting jack rabbits. G. L. Melton presented the *Recorder*. The principal articles were "How to Rush a Trunk Down Town," "A Conspiracy of the Board of Directors," a piece of rhyme about La Grippe, "Our National Emblem—the Eagle," in which the wild turkey was suggested as a substitute, it being argued that the eagle was not representative of any republican idea, nor had any associations peculiarly American. R. W. Newman discussed our duty to the Society, making many wise suggestions for the improvement of our programs and general exercises. C. M. Ginter opened his discussion on Dehorning Cattle by reading a piece about the Future Cow as she may be expected to be developed by the practice of dehorning. He then presented his own views, much to the amusement of the Society. Frank Beech reviewed the advance in modes of travel, and J. E. Pierce told something of the condition of Andersonville Prison during the war. WAUGH.

SOCIETY HALL, January 18th.

The Webster Society was called to order by President Martin. Roll-call was followed by prayer by C. A. Campbell, after which the officers elect were inaugurated. After President Stoker had taken the chair, a valedictory was called for, and Ex-President Martin responded. He was followed by a short inaugural speech by the newly elected President. The election of M. W. McCrea as a member, was followed by debate, on the question, "Resolved, That human society should tend toward universal co-operation." It was argued on the affirmative by E. T. Martin and R. Long, who brought forth the following points: that no nation has existed without co-operation; peace cannot reign supreme without co-operation; we cannot live in happiness unless society co-operates for the benefit of the people. They cited as an example of the benefits of co-operation, the fact that we as a nation are at peace with all nations, and so are in co-operation. The negative was presented by Messrs. Dobbs and Pape, who brought forth the strong point that each man must be for himself; that is, individualism is to be preferred to co-operation; also that co-operation is not desirable, for if so, our forefathers, who became dissatisfied with England and English customs and laws, would never have emigrated, and founded America, the home of the free. The Society decided in favor of the affirmative. A recess of ten minutes was followed by an essay by W. W. Robison, on "The Wolf." Music, a quartette, S. N. Chaffee, committee. Declamation, C. O. Whitford. An essay by Sprague Farman, was followed by a reading by Boyd P. Scott. Discussions by J. A. Davis and J. O. Morse. Under unfinished and new business, came several reports of committees, and various other business. Messrs. Willard and Mills each made a speech, after which the Society adjourned. C. A. C.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Stockton Academy has been closed for the winter.

District schools Nos. 2 and 7 of Wyandotte County had to close doors on account of influenza.

Prof. Welton of Emporia College has written a new music book, "A Rational Method for the Pianoforte."

The Junction City schools have added German as an elective study to their course of instruction. A large number have started work in the new branch.

Professor Cragin spent the greater part of the winter vacation in Oklahoma, studying the geological formation of that interesting territory.—*Washburn Reporter*.

Barlow Lippincott, son of ex-Chancellor Lippincott, and a University graduate of '86, has been appointed Assistant Topographer in the United States Geological Survey.

A petition is being circulated and extensively signed at Olathe, asking the City Council to take steps looking toward the organization and maintenance of a free city library and reading room. It is said the Council will act favorably upon the matter.

Hon. J. F. Billings, of Clay Center, and formerly Superintendent of Schools in Riley County, who was recently appointed Special Agent of the General Land Office, with headquarters in Denver, has presented his resignation as a Regent of the State University.

Mr. John Hay of Junction City, brother of geologist Robert Hay, has commenced the publication of a monthly magazine, the *Mid Continental Review*. It is intended for the masses,—farmers, business men, and mechanics,—and will treat science, art, literature, and the great National and State questions of political economy.

The new drill-room of the Turn-Verein of Marysville is said to be the best built, best lighted, and best ventilated room of the kind west of St. Louis. The floor dimensions are 36 by 62 feet, and the height 24 feet between the floor and the paneled ceiling. With it are connected a spacious lecture room with stage, a well-lighted library, and several dressing rooms. The heating and ventilating is of the new Smead pattern, and has cost \$4,000. The whole property is valued at \$35,000.

Lane University at LeCompton is rejoicing over a handsome Christmas gift. The *Echoes* says: "Through the hands of our President, a donation of \$15,000 as a Christmas present, was received. For some reason, it may be to avoid the appearance of presumption, the donor has requested his name to be withheld from the public for the present. Whoever it is that has thus followed his benevolent impulses, we may return him our gratitude, and looking upward, 'Praise God from whom all blessings flow.'"

The State Board of Education at their meeting last week considered the matter of time of holding the county institutes. A majority of the County Superintendents favor the three dates, June 9th to July 4th inclusive, July 14th to August 8th inclusive, and July 28th to August 22nd inclusive. Renewals of certificates were granted to Miss Pheobe J. Clark, of Minneapolis; Miss Mary Bell Parker, of Lawrence, and A. D. Chambers, of North Topeka. Eighty institute conductors and about 150 instructors' certificates have been granted.

The Committee on Course of Study, appointed by State Supt. Winans and requested to report at the County Superintendent's Convention at Hutchinson in May next, can find no better base to work upon than the "Course of Study and Guide for Common Schools," published by the Public School Publishing Co., Bloomington, Illinois. Somebody has sent us a copy of this work lately, and we frankly own that within the space of 100 pages we never have seen anything better. We do not know the price of the book, but it is a goldmine for a teacher who wants to compare systems of instruction.

If we could measure the remote consequences of some merely thoughtless deeds, our estimate of human responsibility might be greatly magnified. Several years ago, a French entomologist brought

from his native country to Medford, Mass., some specimens of the gypsy moth, then unknown in America. In some way they escaped from the netting in which he had kept them. He notified the people of the fact, but neither he nor they seem to have thought of it further. Last summer whole avenues of shade trees were completely stripped of their foliage by the descendants of the Frenchman's moths, which devour every green thing within their reach, and threaten to become a terrible pest, spreading over a wide extent of territory. How easy, once, it would have been to have killed the apparently harmless things! So may a word or deed that seems a trifle rise up years hence to appall us by its growth and spread.

MEANS OF ILLUSTRATION.

Agriculture.—Two farms of 215 and 100 acres, for the most part surrounded by durable stone walls, subdivided into fields of variable size to suit the system of management.

A large variety of standard grains and forage crops in cultivation in fields and experimental plots.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power, and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs. Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments are valued at \$25,000.

Horticulture and Entomology.—Orchards containing 275 varieties of apples, 50 of peaches, 50 of pears, 16 of plums, 20 of cherries, and 10 of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard, with 75 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from ten to fifteen years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames and experimental beds. Practice rows for students' budding, grafting, cultivating, and pruning.

Two well-planned and furnished greenhouses of three rooms each, stocked with a collection of native and exotic plants.

Museum. containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$11,500.

Chemistry and Mineralogy.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$7,500.

Botany.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-one compound microscopes, three dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$2,500.

Geology, Zoology, and Veterinary Science.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and molluscs in the State. Kansas reptiles and batrachians, salt-water fishes and invertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, \$4,500.

Drawing.—Models, plaster-casts, patterns, charts, easels, and implements. Valued at \$1,400.

Physics.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, with numerous accessories, sliding psychrometer, and anemometer. The value of the whole is \$2,000.

Mathematics and Surveying.—Transits, compasses, levels, chains, models, etc. Valued at \$1,000.

Mechanics and Engineering.—Carpenter shop, with separate benches and tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frierizer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse-power Atlas engine.

Shops for iron work, with forges, vises, drills, etc. Testing machine, charts, and models.

Inventory of material and apparatus in both shops, \$5,800.

Kitchen Laboratory. with ranges, cooking utensils, dining-room furnishings, dairy furniture; valued at \$300.

Printing.—Office, with thirty pairs of cases, large fonts of six point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a Gordon job press; a mitering machine, a rule curving machine, and a paper cutter. Value of equipment, \$3,500.

Telegraphy.—Office, with five miles of line, connecting twenty branch offices, and as many instruments. Inventory, \$1,000.

Sewing Rooms. with six machines, models, patterns, and cases, worth \$550.

Music Rooms. with four pianos, four organs, and other instruments; valued at \$1,500.

A Library. carefully selected and catalogued, containing over 9,000 bound volumes, and 2,500 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the principal daily and county papers from all parts of the State. Value of library, \$17,000.

Armory. containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$300.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to a term, according to its length; one a week, \$6 to \$3.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

MANHATTAN ADVERTISEMENTS.

R. ALLINGHAM, dealer in Fresh and Salt Meats. Special attention to student trade. Goods delivered free.

W. P. HOLMAN,—Drugs and Toilet articles, Fancy Groceries, Fruits, Confectionery, Nuts, Cigars and Tobacco.

FOX'S BOOK STORE,—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

HENRY HARRINGTON,—Livery and Feed Stable. The best teams in the city. Special care given to stabling and feeding horses for the public.

SWINGLE & VARNEY,—Book Store. Full line of School and College text-books, school supplies, etc. Call and see us. You will always have a welcome. 320 Poyntz Avenue.

BATH ROOMS,—At Manhattan Shaving Parlor, South Second Street. Hot and cold baths always ready. Everything first-class. Special care taken with ladies' and children's hair cutting. Razors bought and sold. Give me a call. **PETE HOSSTRUP**, Proprietor.

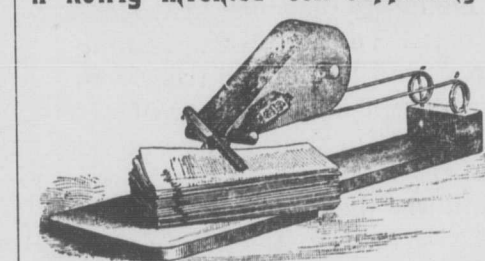
LESLIE H. SMITH, Boots and Shoes, 302 Poyntz Avenue, first door west of Stingley & Huntress. A full line of Rubber foot wear of the best quality at the lowest prices. Mens' all Solid Leather Dress Shoes, \$1.65. Ladies' Fine Dongola Button Shoes, \$2.00. Reliable goods at low prices.

MANHATTAN BANK,—E. B. Purcell, banker. J. W. Webb, Cashier. A general banking business transacted. Bills of Exchange issued on all principal cities and towns of Europe. All bills have personal, faithful, and prompt attention of our attorneys. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices. —"75".

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GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

A VALUABLE ART ACQUISITION.

BY PROF. J. D. WALTERS.

THE College has lately added a few plaster imitations of ancient statuary to its growing collection of illustrative means, the most valuable of which is a beautiful cast of Diana and the Stag, sometimes called Diana of Versailles, having been formerly deposited there.

The statue represents the goddess as advancing on her left foot, her right arm raised to her quiver, and with the left she holds a hind between the horns, grasping at the same time tightly the shaft of a bow. The hair is arranged in a simple manner under a diadem; her short tunic is girt around her waist, and a fold of the girdle passes over her left shoulder. She is supposed to be represented at the moment when she snatches from Hercules the famous stag with golden horns and brazen feet which he has been chasing for a year. "The animal is evidently a miraculous one, for hinds have no horns."

Diana was the daughter of Zeus (Jupiter) and Leto (Latona), and twin sister of Apollo, or Phoebus, from which circumstance she is sometimes called Phoebe. She was also called Triceps and Tergemina, from her three special spheres of rule, being worshipped as Luna in heaven, Diana on earth, and Hecata in the lower world. When painted as Triceps, she is sometimes given three heads,—that of a bird, a dog, and a virgin,—but the realistic conception of the Greek artists of the period following Praxiteles were adverse to such an unnatural and unlovely trinity of forms, preferring to represent her as Luna, Diana, or Hecata. She was the goddess of hunting and childbirth.

The original statue, or rather, group, a clear-cut white marble, is now on permanent exhibition with the art treasures of the French nation in the National Museum of Fine Art at the Louvre in Paris. It was found in the ruins of the winter villa or palace of Emperor Hadrian at Pompeii, and is considered one of the finest female forms unearthed to this day among the debris of the unfortunate Roman city, covered in A. D. 79 by the ashes and cinders of the volcano Vesuvius. It, like the bronze statues of Faun and the Dancing Girl, now in the museum of Naples, the famous Centaurs in black marble, also found in the Hadrian palace and now in Capitoline museum, is evidently a copy of Greek work, chiseled perhaps by one of the army of Greek art missionaries who emigrated to the wealthy cities of the Roman empire after their country had been subjugated by the conquerors of all the civilized world. Diana statues are numerous, and cover almost every age of sculpture, the favorite character being that of a huntress, but none discovered so far show the goddess in such a lovely form and spirited attitude. Unlike the so-called Venus of Milo, a statue of heroic size found in 1820 on the island of Melos in Greece, a copy of which is also in our collection, the Diana has been restored to its original attitude and finish,—all but the bow in the right hand. The original, when found, had the right leg and the left arm broken and otherwise damaged. The animal, of inferior finish originally, has also been changed somewhat.

The cast, now deposited in the class room of art and designing, is of its original heroic size, i. e., over eight feet high; and having been placed on a three-foot pedestal, presents an impressive view from the left and the front. It is the work of the well-known art firm of C. H. Hennecke and Co. of Milwaukee, from whose rich catalogue the greater part of our modest collection of art casts has been selected. Educational institutions located, as ours is, far from the art museums, the art

stores, and the art life of large cities, cannot give their pupils correct ideas of the peculiar civilization of the ancient oriental and South European nations, in the life of which sculpture and architecture played such an important part, without a few, at least, of such representative specimens of their work and artistic conceptions. It is to be hoped that the collection will be allowed to grow until it will be adequate to its grand purpose.

THE BUTTER EXTRACTOR.

BY PROF. C. C. GEORGESON.

ABOUT two years ago, a gentleman in Stockholm, Sweden, by the name C. A. Johanson, invented a piece of dairy machinery which he styled the "butter extractor," its function being to extract the butter-fat from the milk as soon as it was drawn from the cow, without the intervention of all the work and apparatus preliminary to churning in the good old-fashioned way. This machine has recently made its appearance in America as the property of a company styling itself the United States Butter Extractor Company, with headquarters in New York, and a factory at Newark, New Jersey. Nothing in the history of dairying has ever been invented, not excepting the cream separator, which has worked so great and so fundamental a change in dairy methods, as appears to be the destiny of this new machine. If it should prove to be in practice all that is claimed, it must ultimately revolutionize and utterly shatter all of the existing systems of butter-making, do away with the costly buildings, the multifarious tools and machinery, and even supersede the skilled butter-maker who now monopolizes the production of the "gilt-edge" variety we all enjoy as a supplement to our "staff of life."

A machine with such possibilities demands our attention and study. The writer recently had an opportunity to examine it at the factory in New Jersey, and will offer the following brief description of it. In principle, it differs but little from the cream separator, which is now pretty well known to most persons interested in dairy matters. Like the more popular forms of the separator, it is an upright machine, about four feet high, the lower half being chiefly a frame for support, while the upper portion is a cylindrical shell or drum which contains the essential portion of the machine, viz., an inner revolving drum in which all the work is done. This latter drum, which must be as light as compatible with the necessary strength, is made of the toughest steel. It is, in fact, imported from Sweden entire, while all the rest of the machine is cast in this country. It terminates below in an upright spindle-shaft which rests in the frame work, and to which the power is applied in giving motion to the drum. The milk is introduced into the revolving drum from a regulating feed-pan attached to the top of the machine. When at work, this drum is given a speed of between 5,000 and 6,000 revolutions per minute. The enormous centrifugal force thus developed causes the heavier thin milk to be placed in a layer against the wall of the drum, while the lighter butter globules are by the same force separated from the milk and crowded toward the center of the drum.

So far, the machine agrees in principle with the cream separator, but now comes the difference. In the center of the revolving drum, and a part of it, is a cup, or inner drum, about eight inches in diameter at the base, and somewhat narrower at the top; the wall, which is some five inches high, flaring slightly inward. Now, as the butter globules are separated from the milk and forced eventually toward the center of the drum, they will soon press against the outside of the wall of this cup, and fresh milk being constantly introduced, they

will rise above the rim and overflow into this cup. Once inside the cup, the cream, or butter fat, is again arranged in a layer against the wall of the cup, with an open space in the center.

Taking advantage of this position, the inventor has accomplished his object, viz., that of churning the cream into butter, by a simple though ingenious contrivance placed in the center of the cup. This contrivance consists of a so-called trundle-wheel, which is merely a cylindrical frame or cage of thick wire bars placed vertically. For the sake of the illustration, it may be compared to a revolving squirrel-cage, which it resembles, except that the latter is larger and is placed horizontally, while the trundle-wheel is upright. It is placed in the center of the cup, but without touching the bottom, it being supported by, and revolving upon, a bar which projects downwards from the lid which covers the machine when at work. The churning of the cream is accomplished by this wheel, or wire cylinder. When in operation, it is placed so that the rapidly revolving cream-wall strikes against its bars on one side, turning the wheel, but at the same time giving enough agitation to the cream to unite the butter globules.

The butter thus formed falls by its own weight through slits in the bottom of the cup into a chamber below, and here it is scraped up by a tube styled a butter knife, which discharges it into a receptacle placed below to receive it. The butter is not solid when it leaves the machine, but by placing the trundle-wheel so that its bars enter more or less deeply into the cream wall, the consistency can be regulated within certain limits, or pure cream can be drawn if desired. The butter is immediately dropped into cold, clean water, where it solidifies, and is then taken up and salted, worked, and packed for market.

It extracts the butter more perfectly than it is possible to do in churning, leaving but a very small fraction of one per cent of the butter-fat in the milk. The milk can be churned at any temperature, but the temperature followed in general practice—about 62° F.—is best. To cool the milk to this temperature, it is first placed in a tin reservoir so constructed that a body of cold water circulates about it, and when cool enough it is discharged through a faucet into the feed pan of the machine. The machines at present manufactured have a capacity of about 150 gallons of milk per hour, but I was informed that smaller machines suited to small places would soon be built. A two-horse power engine is required to run it.

Now, if all this be true, the economic value of the machine in creameries and large dairies will at once become apparent. Only a fraction of the space is needed which is required by the old method of setting and skimming the milk; a moderately large room would answer all purposes. The saving in buildings would more than cover the cost of the machine (\$450.00). It saves the labor and apparatus required to put the milk and cream through the various stages till the butter is made. The butter is of uniform quality, and as it is all strictly first class, the machine takes the place of the expert butter maker. The milk is churned at once, before lactic fermentation can set in, leaving no opportunity or time for injurious germs to enter and develop in the milk; hence the butter must be perfectly pure. The only drawback this mode of butter-making has is one of public taste. Consumers generally are accustomed to butter made from sour cream, and "sweet" butter has a comparatively limited market. But time will alter this, should the butter extractor prove to be in the line of economic production.

A mother is naturally expected by her children to be a perfect encyclopedia to draw from, and no one has such need of varied knowledge and accomplishments.

FAULTS IN OUR FARMING.

The greatest fault with American farming is doubtless its lack of thoroughness. Nearly all farmers in this country spread their labor over too much ground, and therefore make it incomplete. It was said long ago by a careful economist that farmers in New York State would find larger profits if they would abandon half their acres under cultivation and bestow all their labor on the remaining half. The estimate was not extravagant. There are many farms that give no profit whatever under cultivation except from small areas, properly fitted and tilled, although much larger areas are ploughed, seeded, and yield crops barely sufficient, or less than sufficient, to pay for the work. There are thousands of acres tilled from year to year with not enough return to pay for ploughing, harrowing, seeding, and harvesting, leaving taxes, fencing, care, and cost of investment as certain loss. Yet all this loss might be avoided easily, or turned to satisfactory profit.

As a matter of fact, there is no real profit in the older States except as work be done fully, all requirements met without regard to expenditure of labor or cost. It is true, doubtless, that on most farms ranging below \$100 per acre in price more real profit might be derived from thorough cultivation of half the area than is now had from less than thorough cultivation of all. Besides, if labor were confined to the smaller areas, natural products of the fields turned out of use would be worth considerable for grazing. The question deserves careful consideration by every farmer who has more land than he can till thoroughly. Under present conditions, thoroughness is the only guaranty for success, and thoroughness is impossible to the farmer who spreads his labor over an area so great that seasons and conditions overrule his plans.—*Husbandman.*

THE BUSINESS HABIT.

One man makes a success; another, with equal ability and opportunity, signally fails; the one plans and performs, the other plans and lags. The successful farmer puts on the needed rail and saves the garden; attacks the weeds when they are easily killed, and before they damage the crop; roots out the first daisy or dock that invades his premises; gains time to cultivate his corn once more, and is ready to cut it before a hard frost injures the ear and almost ruins the fodder. He gains wealth—or competence, which is better. A man, to succeed in this world's scramble, must, like a well-managed railroad, run on time. This brings us to the very important fact that business ways should be acquired early in life. To this end, work—manual training—must be a part of the discipline of the school. A portion of each day should be devoted by every pupil to horticulture, work in iron, wood, leather, or some of the useful arts. It is not only necessary for the young men to learn how to do the work on which they will have to depend for a livelihood, but it is necessary that they apply themselves systematically and regularly to some productive industry, that a business habit may be acquired and confirmed by long practice. If, during the several years devoted to education, labor is left out, and no instruction given in handicraft, that postponement will create a distaste for work; easy-going ways will be acquired; little will be done on time, and much that ought to be done, not done at all.—*New York Tribune.*

SALT FOR DAIRY STOCK.

We have never had any doubt of the importance of free access to salt by dairy stock. But we now and then meet with people who think salt an injury to both animal and man, and some have gone so far as to deprive their animals of salt altogether, except what they derive from the food they eat, every kind of which contains at least a trace of common salt, writes a correspondent to the *Nebraska Farmer*. Lack of salt for cows used to be considered a cause for hard churning, and is now so considered by many good judges, who at once administer salt to their cows as a remedy for the evil. But in earlier days dairymen had not yet reached the point of keeping salt constantly within reach of their cows so they could help themselves. All these early notions were founded on tradition and loose observation, but it is interesting to note how closely they agree with modern scientific conclusions.

The experiments of European nations—notably of the French—seems to have definitely determined the value of salt for all kinds of stock. Modern ob-

servers have reached the conclusion that salt is necessary to the best health and performance of a cow. Prof. Robertson of the Guelph Experimental Station, Ontario, says a series of experiments convinced him that to deny cows salt for even one week reduces their flow of milk 14½ to 17½ per cent in quantity, and lowers the quality. Milk given when the cows are deprived of salt, he says, will sour twenty-four hours sooner than that given when they have a full supply of it. It is greatly relished by all animals, which is a strong presumptive evidence in its favor, and there cannot be a reasonable doubt at this late day that salt is beneficial to them.—*Omaha Bee.*

KANSAS THRIFT.

"Buffalo" Jones of Garden City has bought another herd of fifty buffaloes. He bought them at Winnipeg, and they cost him \$26,000.

Kansas produced as much live-stock and hay as it did wheat last year—about seven million dollars' worth. Oats reached twenty-four millions, slaughter animals sixty, and corn seventy-nine.

The native Kansas forest, covering an area of one hundred acres on the old Fort Hays reservation, is one of the many things that illustrates the possibilities of Kansas when prairie fires are properly guarded against for a given period.

Mr. Bush of Cawker City recently transferred carp from an original pond to a new one. Something over a year ago he put fifteen carp in the original pond, and there are now thousands of fish there weighing from one to three pounds.

The County Treasurers have been making their settlements with the State Treasurer since the first, and the general report is that the payment is more general than it was a year ago. There is less delinquent tax to carry over than in the last two years.

The Kansas man, says George Martin, is the strongest man on earth today. Every circus has its strong man—a man capable of lifting anvils and such. But the Kansas man, ever to the front, is lifting his mortgages and not raising the sweat.

Beloit is moving in the matter of boring for salt and gas. The first thing we know they'll bore the bottom out of our Spirit Spring, and then what will become of Cawker's salt interests? Let's tap the fountain head before we're despoiled of it.—*Cawker Record.*

About two years ago, salt was discovered in the town of Hutchinson. Today, there are twelve establishments in operation, with a combined output of 1,637,000 barrels of salt per annum, and much farther development is expected, the field of operation is so great and the salt of such purity.—*Topeka Mail.*

Henry Watterson, in a recent editorial in the *Louisville Courier-Journal*, said: "The Kansas farmer sits by his corn fire and reads his mortgage," but the *Globe-Democrat* reminds Henry that the mortgage wouldn't be in the farmer's possession if it hadn't been paid. And thus the Kansas farmer is still in front of the procession.

The Medicine Lodge *Index* says the coming season the sugarworks will probably experiment on what can be done with cane pulp. It is known that it will make papier mache, and from this can be manufactured lumber, barrels, buckets, and a thousand things. It is possible that the company may decide to make its own sugar and syrup barrels and, maybe, experiment in paper making.

On New Year's day, Kansas farmers were boasting of being able to dig potatoes all winter. Today they are bragging of more snow to the acre and more cold to the foot than any other State east of the Rockies. From January 12th to the 24th, the thermometer has, most of the time, clung close to zero, climbing once to 40° above, and sliding twice away down to 19° below. If cold weather is a tonic against la grippe, we have it cheap.

The Medicine Lodge *Index* makes the following good report of the sugar of the mills in that city: "The sugar works and refining company have just put in \$1,000 worth more of tanks and vats, and have everything full of syrup. This week they shipped a carload of sugar to Iowa, and they have an order from the same customer for another carload. The demand for their sugar is increasing rapidly. Here at home, Medicine Lodge sugar is used in preference to any other. The best sugar manufactured the past season as an experiment, 10,000 pounds, will all be sold here."

CALENDAR.

1890-91.
Fall Term—September 12th to December 20th.
Winter Term—January 7th to March 28th.
Spring Term—March 31st to June 11th.
June 11th, Commencement.
1890-91.
Fall Term—September 11th to December 19th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address Jno. E. Hessin, Loan Commissioner, Manhattan, Kan.

LOCAL MATTERS.

Assistant Mason is at his post again after a week at home with the influenza.

Secy. Graham has an invitation to lecture before the Capitol Grange, Topeka.

Assistant Swingle has had charge of Prof. Kellerman's classes the past week.

H. B. Gilstrap, R. J. Brock, and J. O. Morse are Cadet Captains for the Winter Term.

Whooping cough has made its appearance in the families of Prof. Georgeson and Supt. Thompson.

The College Battery has been organized. W. H. Sanders is Commander, and S. I. Borton, First Sergeant.

The papers announce the death on January 30th, from pneumonia, of Mrs. Matilda T. Smith, wife of Ex-Regent Smith of Eldorado.

Rev. E. O. Sharpe of the Manhattan Christian Church led the last Sunday afternoon meeting of the Young Men's Christian Association.

The College Athletic Club will send a delegate to the meeting of the athletes of the State, who will meet in Lawrence on February 14th, to form a State Association.

The Alpha Beta and Webster Societies have united in invitation to Rev. B. J. Radford of Illinois to deliver a lecture in connection with Commencement exercises.

Secy. Graham gives his lecture, "Electricity as an Educator," before the Randolph teachers this evening. He is assisted in the management of the apparatus by W. W. Hutto, a Third-year student.

In Mrs. Kedzie's absence, on Friday, the lunch was served by the young ladies of the Cooking Class alone, and that they did credit to their training, the host of students who ate of their cooking can testify.

Mr. and Mrs. Stearns of Blue Mound called at the College on Thursday on their return from the G. A. R. Encampment at Salina. Under the guidance of their daughter, a student, they found much of interest in the various departments.

The Domestic Department is in receipt of a five-pound can of Dr. Price's baking powder, as well as a pint each of lemon and vanilla extracts. The Cooking Class have as yet given these articles but a single trial, but find them all that the manufacturers claim.

Preparations are being made, even at this early date, for certain features of Commencement exercises, not the least important of which will be the triennial reunion of alumni, which will be the means of adding largely to the number of visitors on that occasion.

Prof. Kellerman succumbed to the prevailing epidemic a week ago Friday. During the following four days, the usual symptoms displayed themselves in the normal manner, but Tuesday night the case assumed a more aggravating form in the shape of throat troubles. This, however, is promptly yielding to medical treatment, and the Professor hopes to be able to resume his College duties before many days.

Seven members of the Fourth-year Class, constituting the First Division, occupied the public hour in Chapel yesterday afternoon with orations. The variety of the topics treated, showing the most earnest thought in preparation, and an unusual earnestness in delivery, speaks well for the training and growth of these representatives of the Class in this part of their work. The hearty applause of the audience showed the spirit with which the efforts of the speakers were received. We give the names of the members of the Division, with their subjects: S. I. Borton, "Some of the Impending Evils of the Republic;" F. A. Campbell, "The Excuse for Resubmission;" A.

F. Cranston, "The Times and the Work of Three Remarkable Cardinals;" Bertha Kimball, "Life Out of Death;" Jno. Davis, "Misdirected Energy;" G. W. Dewey, "Dom Pedro, the Emperor;" C. J. Dobbs, "Protection and Free Trade."

The Farmers' Institute at Edgerton, this week, at which President Fairchild took part by special invitation, at the expense of the Institute, was in every way a marked success. The house was crowded to overflowing, the attendance during most of the sessions reaching at least 250; the papers presented were excellent and timely; the discussions were sprightly and earnest; entertaining music was furnished by the glee club; and the officers were prompt and efficient. The Institute will be held next year at Wellsville, Franklin County, in the month of December; and the College is already invited to share in its programme.

GRADUATES AND FORMER STUDENTS.

J. E. Payne, '86, was enjoying the Farmers' Institute at Edgerton this week.

Wm. Knabb, '89, writes from Hiawatha on "important business" connected with the coming Alumni Reunion.

J. L. McNair, Second-year in 1880-81, was married, January 28th, to Miss Grace Heindel. Manhattan is their home.

Bertha M. Bacheller, '88, and her brother, C. B., Fourth-year in 1886, have been granted normal instructors' certificates.

E. M. Anderson, Second-year in 1884-5, writes from Conway Springs, hoping to re-enter College next September to complete the course.

Miss Robbie C. Edginton, student in 1881-2, is teaching near Edgerton, and attended some of the sessions of the Institute there this week.

Dexter S. Houston, Sophomore in this College in 1869, is mentioned by the *Miltonvale Review* as good timber for Congressman from the Fifth District.

C. M. T. Hulett, Fourth-year in 1878-9, is Secretary of the Farmers' Institute Association of Johnston and Franklin Counties, having his home in Edgerton.

C. E. Yeoman, Second-Year in 1888-89, is at home at Lippard, Rush County, after a successful six months' work in Arkansas and Indian Territory for the Gaskell Literary Company.

G. A. Cooper, student in 1885, writes from Greenhorn, Colo., renewing his subscription, and saying that he likes to hear from the College, and cannot do without the *INDUSTRIALIST*.

The papers mention the death of Mrs. Ella Waters *Moody Acker* on January 27th, of consumption. Mrs. Acker was a student for several years, and was married at the College.

Among former students met by the President at Edgerton this week were T. F. Marshall of 1879-80, J. H. Pearce and P. E. Wolfley, present in 1885, and G. W. Stewart of the present year.

W. Ulrich, '77, has purchased of Mr. W. H. Cowles, formerly Professor of English and History in this College, the lots near the fair ground, south of Regent Hessin's residence, and will build upon them.

S. H. Carnahan, student in 1882-83, writes from Walla Walla, Wash., where he occupies the position of Secretary to the Upper Columbia Tract and Missionary Society, that he was visited recently by Mr. Gilmore, '81.

Friends and acquaintances will receive with sorrow the announcement of the death of Kathrina Spilman, Second-year student in 1888-89, which occurred at the home of her parents in Manhattan, on Thursday, January 30th, having never rallied from the malarial fever which attacked her in September. Her classmates, the Third-year students, held a meeting Friday morning, and adopted the following resolutions of respect:—

"WHEREAS, The all wise Father has seen fit to remove from our midst our friend and former classmate, Kathrina Spilman; therefore, be it

"Resolved, That, while we believe that she is in a land of peace and rest, we regret that the ties of friendship should be severed so soon; that, by her departure, we lose from among us one of the sweetest and purest of our number; that we, members of the Third-year Class, extend our heartfelt sympathy to the bereaved ones."

COLLEGE SOCIETIES.

Scientific Club.—President, O. P. Hood; Vice-President, J. T. Willard; Secretary, A. A. Mills; Treasurer, Abbie Marlatt; Board of Directors—J. D. Walters, J. F. Morrison, and O. E. Olin. Meets in Chemical Laboratory on the fourth Friday evening of each month.

Webster Society.—President, G. E. Stoker; Vice-President, S. C. Harner; Recording Secretary, H. W. Avery; Corresponding Secretary, C. A. Campbell; Treasurer, J. W. Ijams; Critic, W. T. Swingle; Marshal, B. H. Pugh. Board of Directors—G. E. Stoker, J. A. Davis, C. A. Campbell, W. S. Arbuthnot, S. N. Chaffee. Meets Saturday evening at half-past seven o'clock.

Alpha Beta Society.—President, Marie B. Senn; Vice-President, W. W. Hutto; Recording Secretary, Delpha Hoop; Corresponding Secretary, Sadie Moore; Treasurer, J. N. Harner; Marshal, P. E. Westgate; Director, V. O. Armour; Critic, May Harman. Meets Friday afternoon at three o'clock.

Hamilton Society.—President, S. VanBlarcom; Vice-President, A. K. Midgley; Recording Secretary, A. E. Martin; Corresponding Secretary, F. A. Waugh; Treasurer, G. W. Wildin; Critic, F. A. Campbell; Marshal, R. W. Newman. Board of Directors—A. F. Cranston, F. A. Waugh, F. A. Campbell, U. G. Balderston, C. P. Hartley. Meets Saturday evening at half-past seven o'clock.

Ionian Society.—President, Julia Pearce; Vice-President, Doris Kinney; Recording Secretary, Lottie Short; Corresponding Secretary, Maude Whitney; Treasurer, Myrtle Harrington; Marshal, Kate Pierce; Critic, Fanny Waugh. Board of Directors—Effie Gilstrap, Phoebe Turner, and Alice Vail. Meets Friday afternoon at 3 o'clock.

Young Men's Christian Association.—President, W. H. Sanders; Vice-President, V. O. Armour; Recording Secretary, H. B. Gilstrap; Corresponding Secretary, R. W. Newman; Treasurer, H. Darnell. Meets in Horticultural Hall Sunday afternoon at three o'clock.

Young Women's Christian Association.—President, Christine Corbett; Vice-President, Ora R. Wells; Recording Secretary, Callie Conwell; Corresponding Secretary, Ava Hamill; Treasurer, Sarah Cottrell. Meets Tuesday morning at eight o'clock in Society Hall.

SOCIETY HALL, January 24th.

The Ionian Society was opened by a congregational singing, followed by prayer. After the Secretary called the roll, the new members were initiated. The first thing on the programme, a vocal duet by Misses Kate Pierce and Ida McConnell, was followed by a declamation delivered by Miss Blythe. The Society then listened to a select reading by Lotta Short, the selection being humorous as well as interesting. After an oration delivered by Maude Whitney, the *Oracle* was presented by Jennie Selby. Fannie Waugh, in her discussion on Rhetoricals Beneficial, discussed both sides of the question, following which several members expressed their views upon the subject. The Society then had twenty minutes practice in parliamentary law. The reports of the curtain and organ committees were accepted. Under the head of new business, the Board of Directors were instructed to investigate the cases of members for non-performance of duty. The Society decided to have a special meeting the following Tuesday. After the regular orders of the day, the Society adjourned. W.

SOCIETY HALL, January 24th.

The Alpha Beta Society was called to order by President Senn. First was music, L. C. Harman, Committee, Quartett, "My Heart and my Tree," by Misses Greene, Hoop, Hopkins, and Greene. Roll call. Recitation by Fannie Thackrey. Delpha Hoop was installed as Recording Secretary. Initiation of Messrs. Zirkle and Huffman. Debate was next order, the question being "Resolved, That fire has caused more destruction to life and property than water." Mr. Reed opened the question, showing the great losses caused by fire in the pine forests, the dry prairies, and the cities. J. A. Zimmerman presented the negative, alluding to the losses in the flood, Pharaoh's army, and ships at sea. Emma Secret followed, showing the destruction by fire in the debris at the Johnstown flood was as great as that caused by water. Mr. Clothier further argued the negative, recounting great losses sustained, caused by water. Argument closed with speeches by Messrs. Reed and Zimmerman. The Judges, Armour, McIlvaine, and Criswell, decided unanimously in favor of affirmative.

The *Gleaner* was presented by J. A. Taylor. It was well written and well read. The editorial contained some good ideas on the Brazil question, and praise of Dom Pedro.

Recess. Cornet solo by P. E. Westgate. Informal speeches were delivered by Bertha Kimball and E. P. Smith on the subject of rhetoricals. Discussed by members of the Society. Report of Committees. Assignment to duty. Closed with congregational singing. S. M.

SOCIETY HALL, January 25th.

The Webster Society was called to order by President Stoker. Roll call was followed by prayer by S. I. Wilkin. The election and initiation of W. H. Stewart was followed by debate, question, "Resolved, That the annexation of Canada to the United States would be of benefit to both countries." The affirmative was argued by C. A. Campbell and D. H. Otis, who brought forth the points that Canada would be benefited by the union, by having access to large markets which the United States would afford without the cost of the protective tariff; that they would derive benefits from the laws of the United States, and that the United States would be benefited by the large resources, both developed and undeveloped, of Canada; that it would receive all northern trade, and that it would give the United States more valuable territory, making it by far the richest country in the world. Messrs. K. C. Davis and F. F. Baxter discussed the negative, and showed that by annexing Canada the United States would have to pay her debt. Also that the government of Canada is democratic, and the United States is republican, and they would not work in harmony. Also that annexation would bring on a war with England, which, of course, would be undesirable. By vote the Society decided in favor of the negative. Declamation, E. S. Mudge; Essay, D. L. Walter. Reading, F. W. Ames. Recess. Reporter, E. W. Reed. Music, B. H. Pugh, Committee. Essay, W. T. Swingle. Discussions, W. T. Taylor and S. I. Wilkin. Unfinished business. New business. Selection of question and assignment of duties. Report of Critic. Reading of minutes. Adjourned 10:30 p. m. C. A. C.

HAMILTON HALL, January 25th.

President Van Blarcom called the Society to order, and G. L. Melton led in prayer. G. W. Wildin was inaugurated as Treasurer, and F. A. Campbell, as Critic. W. O. Sawyer was elected to membership, and initiated. L. S. Strickler opened the programme by reading Sol Miller's views on woman's place. "Is public opinion a safe standard of right?" was debated first by U. G. Balderston. In the United States, public opinion has its strongest power, and is most easily studied. Mr. Balderston gave several examples of what he considered public opinion. Public opinion is the will of the majority, and is the only standard of government in America. It keeps many men from doing wrong, for even the lowest criminal has some regard for it. County Treasurer Fortner had been condemned by public opinion long before the law was resorted to. G. W. Wildin opened the negative. Perhaps public opinion may be tolerated in its judgments of public matters, but it has no right to deal with private affairs. True, public opinion often decides for itself before the law can act, but the judgment is often wrong. Its basis is usually circumstantial evidence, and this can never be relied upon. In the case of the "Salem Witchcraft," public opinion convicted many innocent persons and put them to death. F. W. Ayers, on the affirmative, said that the United States was governed alone by public opinion, and its government is acknowledged to be the best in the world. The American Revolution was upheld by public opinion in America. In this case, it was a safe standard. Ben Skinner had been chosen to fill a vacancy on the debate, and now continued the negative. Public opinion must be the opinion of those competent to judge. In the Fortner case, the public has not the possession of all the facts, for the public crimines only Mr. Fortner, while others must be implicated. No such defalcation, he argues, could be made by one official without the cognizance of others. Public opinion always jumps at the face of everything; lynch law is the result; and lynch law has no right to be called justice. At the close of the Revolution, public opinion in the South was directly opposed to that in the North. Mr. Balderston, in closing, said again that public opinion meant the will of the majority, and that in the Rebellion the North was in the majority, and that time had proved them to be right. He gave several instances in which public opinion had made correct judgments of private affairs. To close the debate, George Wildin carefully reviewed all the ground covered, with such success that the Judges decided unanimously in favor of the negative. The whole debate was excellent. Recess. J. A. Rokes was Music Committee, and under his direction a quartet sang "Solomon Levi." R. J. Brock's eulogy on Grant was a first-class one, and well-delivered. M. G. Riddell told the news of the week. Under unfinished business, the Society amused itself, augmented its treasury, and asserted its discipline by fining two members fifty cents each for disturbing a previous session. The assignments to duty were made, and the Society adjourned at a late hour. WAUGH.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The enrollment up to date of Baker University is just 400.

The schools of Ottawa had to be closed last week on account of the influenza.

Prof. Hoss of Baker University informs us that the Board is not likely to select a successor to President Dr. Gobin until next June.

The new catalogue of the State University, just out, enumerates 508 students and 33 teachers. The institution is in a prosperous condition.

A number of Kansas exchanges speak of the Indian School at Lawrence as a State institution. It was established by the United States; Kansas had nothing to do with it.

Del Valentine, editor of the Clay Center *Times*, has received the appointment as Regent of the State University in place of J. F. Billings, who resigned a short time ago.

Our young people seem to realize that ice and skates rarely meet in Kansas and in consequence they have been improving the brief season now granted for evening skating.—*Eureka Academy Student*.

Professor Moses Kavenaugh, S. J., of St. Mary's College, St. Marys, Pottawatomie County, was attacked several days ago with la grippe, which produced acute pneumonia, from which he died Tuesday of last week.

The Phillipsburg *Herald* says: "One janitor, two teachers, and over 150 pupils of the Phillipsburg schools being seized by la grippe on last Monday, caused Prof. Loar to close the school for a two days' vacation to give the 'grip' an opportunity to let loose."

The school board of Atchison has adopted a resolution to prosecute all parents or guardians in that city who do not fulfill the requirement of the school law, which makes it compulsory to send all children of school age to school at least twelve weeks of the year. Will it do any good?

The *Weekly Tidings*, a paper published at Salina, and devoted to the work of the Methodist Conference and Wesley University, has reached our reading table. The paper is a three-column quarto, published weekly, and may be obtained of its editor, Rev. A. N. See, for 25 cents per six months.

The second semi-annual convention of school officers of Mitchell County will be held at Beloit, on Saturday, February 22nd. The programme, of which we have received a copy through the kindness of Supt. James M. Cox, deals with practical questions, such as "The Model School House," "The Library Tax," "County System of Taxation," "Desired Changes in School Law," etc.

Ex-Governor Robinson delivered an address Monday night before the Unity Club at Lawrence on Eli Thayer's book, "The Kansas Crusade." Governor Robinson declared that Thayer was the originator and life of the Free State emigration to Kansas; that the Emigration Aid Company made Kansas a free State, and that the Garrisonites hindered, rather than aided, the Free State movement in Kansas. He referred to John Brown and Jim Lane in severe terms, claiming that they receive the credit due to others, and that their work was in the nature of disorganization.

The publishers of the *Youth's Companion* offer to present a fine large bunting flag 9 by 15 feet, with forty-two stars, to that public school in each one of the forty-two States and Territories which shall send to them the best essay on "The Patriotic Influence of the American Flag When Raised Over Our Public Schools." These essays will be received by the publishers of the *Companion* until April 1st, 1890. The award of the flag will be made as near June 1st as possible, in order that the successful school may float the "Stars and Stripes" over its building on the Fourth of July next.

An exchange complains: "The Teachers' Association meetings seem to fail to secure the enthusiasm and attendance they deserve. The weather may have something to do with it, but it would seem to us that the results to be obtained from such meetings would offset a great deal of inconvenience the teachers might experience in their efforts to attend regularly." If we had the management of such an association, we should try the flag presentation

method. If the State and Congressional District Associations find it expedient to do such side show business to draw a crowd, why not adopt the plan clear through the whole system of educational meetings? Selah!

Parents should encourage their children who are attending school to adopt regular habits of study out of school. The real proficiency of your children in school can be measured, with tolerable accuracy, by the amount of time spent at home in study and reading. No scholar can ever hope to reach commendable scholarship who does all his study in the school-room. The habit of study, so salutary in its effect, is developed only by study, and every encouragement should be lent at home to cultivate it.—*Norton Educator*.

The last circular letter of President J. H. Canfield of the National Educational Association concludes with the following interesting and characteristic paragraph: "The President feels that an explanation is due to some interested parties, of what has been referred to recently as 'unnecessary abruptness in official correspondence.' He is virtually without an assistant for such work, and finds it imperative to compress as much as possible into the fewest possible words—even at the risk of appearing discourteous. Correspondents should remember that the President has other and prior duties that claim his time and strength; and that Association work, which now involves in correspondence alone an average of thirty letters a day, must be done as rapidly as is consistent with clearness and accuracy. To do the work at all means practical banishment from family, social and civil life, for the Association year. This is not a complaint, but an explanation."

HALF RATES TO ST. PAUL.

The National Educational Association and Council of Education have decided to hold their next annual convention at St. Paul, Minnesota, July 4th to 11th, 1890. Hon. James H. Canfield of Lawrence, Kansas, is President of the Association. It is expected that there will be twenty thousand teachers present from all points of the Union. The Western railroads have already agreed to sell tickets to St. Paul and return for one lowest first-class single rate for round trip. Eastern and Southern roads will make low rates, which will be announced at an early date. St. Paul has organized a Local Executive Committee, and the most complete arrangements are being made to give the teachers a splendid welcome to the Northwest, and to make the meeting a great success. There will be ample hotel accommodations at reasonable rates. Local excursions are being planned to all points of interest in the Northwest and on the Pacific Coast, which will furnish teachers with the finest summer holiday trips that they ever enjoyed. One hundred thousand copies of the official bulletin will be issued in March. It will be a 24-page quarto, beautifully illustrated, containing full particulars about programme, entertainment, rates, and routes, and will be sent free to all who send names and addresses. Address, S. Sherin, Secretary Local Executive Com., St. Paul, Minn.

THE WAY THAT WINS.

This farmer ran into debt for a poor, run-down farm, and succeeded in paying for it and bettering his condition out of the products of the farm. He said he did it by persistent effort and breeding up his stock—especially the latter. He used only thoroughbred males, and before he could buy, he hired their services. The result is that "his scrub horses have been bred up from those of \$100 in value to \$300 Percherons; his cows now make 300 pounds of butter a year instead of 150; his sheep shear 9 pounds in place of 4; his pigs weigh as much at eight months as they did at eighteen, and his fowls weigh 5 pounds instead of 3, and lay much larger eggs and just as many of them."—*Galen Wilson, in New York Tribune*.

TRICKS IN TRADE.

The whole community is demoralized by the tolerance it gives to fraud. People have become so accustomed to trickery in trade that they expect it as a matter of course; finally, the trickster comes to consider it established usage, and so morals and fair dealing go by default. The public, in submitting without determined resistance to adulterations, become partners in the villainy. Do I ask too much when I insist that customers carefully scrutinize what they buy; refuse to purchase

defective goods; refuse to trade with any but painstaking and conscientious dealers? I call for what I want; ought I not to have the things I pay for? If the dealer substitutes some worthless article, in whole or in part, am I not cheated, and is not the man who swindles me a fraud? Getting money on "false pretences" is an offence punishable by law; why should tricky tradesmen fare better than others of their class? Let us keep in mind that tricks of trade demoralize the tricksters and debauch the whole community. Fraud is a school of vice; its graduates fill our persons and furnish victims for the gallows, while those left at large waste our substance to an extent scarcely conceivable.—*Hugh T. Brooks, in New York Tribune*.

WHERE THE MONEY GOES.

The policy of not getting anything until it can be paid for is a safeguard against extravagance, and a systematized account of all expenditures will give that perfect knowledge of the actual cost of living without which, on a small income, plans cannot be laid to the best advantage. It will also serve to keep expenditures within the bounds of prudence, and show wherein retrenchment, if necessary, can be best effected. There should be but one purse, and, as is too often the case, the man should not throw the whole domestic burden upon the woman and grumble because, with little money at her command, she finds it necessary to expend it all. Husband and wife should plan together. With a complete statement of expenditures always at hand—with those put down by the husband as well as those put down by the wife and for the family—there would never be occasion for the question, "What did you do with the money I gave you yesterday?" and, in the large majority of cases, it would not be the woman's fault if something was not saved for "a rainy day."—*De-troit Free Press*.

Judge Brady of New York, in sentencing recently two men who had each shot another with a pistol, declared his purpose to secure an enactment by the Legislature forbidding the selling of pistols without a license, and requiring that every pistol offered for sale shall be stamped with the name of its maker, and its registered number. Pistols are altogether too numerous, especially in the hands of small boys and young men. Wholesome legal restrictions on their use in every State would materially lessen accidents and crimes.—*Exchange*.

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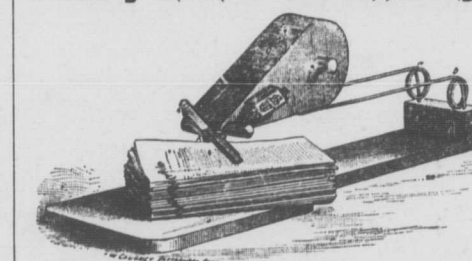
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